



**The New York  
Academy of Medicine**



***Library Fund***  
*(General)*

Established 1878



LIBRARY  
MAY 29 1992  
NEW YORK ACADEMY  
OF MEDICINE



JOURNAL OF THE OKLAHOMA STATE MEDICAL ASSOCIATION

VOL.79,1986

ISSUE #1 IS UNAVAILABLE IN THIS LIBRARY.



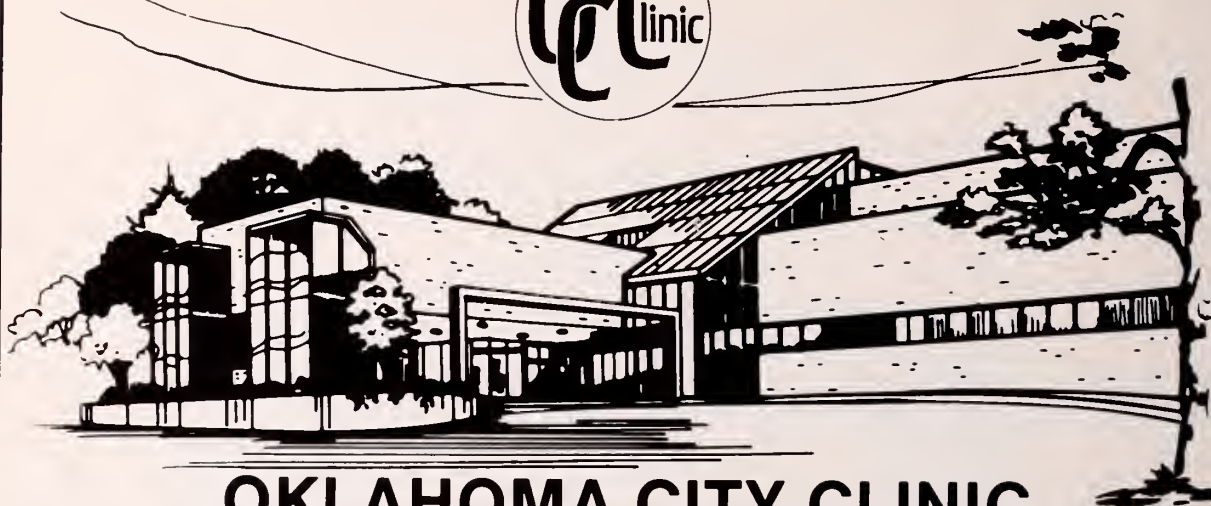
Digitized by the Internet Archive  
in 2016

<https://archive.org/details/journalofoklahom791unse>

# JOURNAL

OKLAHOMA STATE MEDICAL ASSOCIATION  
FEBRUARY 1986





# OKLAHOMA CITY CLINIC

Multiple Specialty Clinic

701 Northeast 10th Street • Oklahoma City, Oklahoma 73104 • Telephone - 271-2700

**1-800-522-0224**

## **CARDIOLOGY**

Charles W. Cathey, MD  
Charles W. Robinson, Jr., MD  
Alexander Poston, MD  
Thomas R. Russell, MD  
Paul C. Houk, MD  
Stanley G. Rockson, MD

## **CARDIOVASCULAR- THORACIC SURGERY**

Edward R. Munnell, MD  
R. Nathan Grantham, MD  
Paul J. Kanaly, MD

## **CLINICAL PSYCHOLOGY**

Lucien D. Rose, PhD

## **DERMATOLOGY**

### **Mohs Surgery**

William J. Sahl, Jr., MD  
Michael D. John, MD

## **OTOLARYNGOLOGY**

### **Head & Neck Surgery**

C. Joseph Wine, MD  
Joseph E. Leonard, MD  
Willard B. Moran, Jr., MD

## **ENDOCRINOLOGY — DIABETES**

James L. Males, MD  
Ronald P. Painton, MD  
Jonathan L. Davis, MD

## **GASTROENTEROLOGY**

Malcolm G. Robinson, MD  
David A. Neumann, MD  
Gretchen A. McCoy, MD  
Mark H. Mellow, MD

## **GENERAL SURGERY**

Frank G. Gatchell, MD  
Jay P. Cannon, MD

## **HEMATOLOGY-ONCOLOGY**

Ralph G. Ganick, MD  
Mark E. King, MD

## **AMBULATORY CARE**

Kent C. Hensley, MD  
Leslie A. Arneson, MD  
Richard H. Dykstra, MD

## **INFECTIOUS DISEASES**

Daniel J. Sexton, MD  
Clifford G. Wlodaver, MD

## **INTERNAL MEDICINE**

W.W. Rucks, Jr., MD  
William S. Pugsley, MD  
Donald G. Preuss, MD  
Earl S. Elliott, Jr., MD  
Brian P. Levy, MD

## **OBSTETRICS AND GYNECOLOGY**

John W. Records, MD  
Schales L. Atkinson, MD  
Roger D. Quinn, MD  
Thomas R. Bryant, MD  
Ronald E. Hempling, MD  
Laura L. Mackie, MD  
John D. Dachauer, MD

## **OPHTHALMOLOGY**

James T. Quinlan, MD

## **ORTHOPEDIC SURGERY**

J. Patrick Livingston, MD  
Gene L. Muse, MD

## **PEDIATRICS**

James E. Mays, Jr., MD  
Hal B. Vorse, MD  
William J. Kruse, MD  
Gary D. McGann, MD  
Mickey E. Crittenden, MD

Don L. Wilber, MD  
Charles A. (Tony) Leveridge, MD  
David H. Cheatham, MD

## **PEDIATRIC NEUROLOGY**

Marc Hille, MD

## **PULMONARY DISEASE**

William W. Cook, MD  
Mark S. Fixley, MD  
Steven R. Smith, MD

## **RADIATION THERAPY**

Stephen E. Acker, MD

## **RADIOLOGY**

Melvin C. Hicks, MD  
J. Kent Chesnut, MD  
Alan M. Efron, MD  
Howard G. Daniel, MD  
Robyn L. Birdwell, MD  
Carol V. Sheldon, MD  
Bert R. Carollo, MD

## **RHEUMATOLOGY**

William T. Tatum, Jr., MD

## **UROLOGY**

Donald D. Albers, MD  
William F. Barnes, MD  
Richard E. Herlihy, MD

## **EXECUTIVE DIRECTOR**

A. Wayne Coventon


## **DIABETES MANAGEMENT CENTER**

Patient Education  
by Referral

## **NUTRITION COUNSELING**

Patient Education  
by Referral





# Oh, What A Relief It Is...



Only one medical computer system objectively fulfills all these important criteria:

- Written buy-back guarantee
- Software or hardware or total "turnkey" systems available
- Specialized software packages for all specialties and every size of practice
- Total on-site training, support and service
- Lease/purchase available
- Electronic claims
- Integrated word processing
- Collection system

**TEXAS  
INSTRUMENTS**



**PROPATA**  
**medical systems**

1105 NW 63rd Oklahoma City, OK 73116 (405) 840-0461

Endorsed by M.D. Physicians, Inc., as its sole recommended vendor for computer hardware and software

# Protection that's fiscally fit.

Rising health care costs affect everyone, even those in the medical profession. Today, PLICO HEALTH can protect your risk with a remarkably cost-conscious comprehensive medical/hospitalization plan. PLICO HEALTH is offered by doctor-owned Physicians Liability Insurance Company. Designed by doctors, PLICO HEALTH is the only program created especially to meet the needs of physicians, staff and their families. At your convenience, one of our experienced insurance specialists will gladly provide you with details. For more information about our extensive, new dental plan, please give us a call.



**The Physicians Liability Insurance Company**  
P.O. Box 18171 • Oklahoma City, OK 73154 • 405/524-0801  
1-800/522-9219

## EDITORIAL BOARD

MARK R. JOHNSON, MD  
*Editor-in-Chief*

HARRIS D. RILEY, JR, MD  
*Editor*

ROBERT G. TOMPKINS, MD  
*Editor*

## STAFF

DAVID BICKHAM  
*OSMA Executive Director*

M. MICHAEL SULZYCKI  
*Director of Communications*

SUSAN RECORDS HARRISON  
*Managing Editor*

# JOURNAL

OKLAHOMA STATE MEDICAL ASSOCIATION

FEBRUARY 1986

VOL. 79, No. 2

## EDITORIAL

- On Becoming Generic . . . . . 85  
MARK R. JOHNSON, MD

- President's Page: 1986 OSMA Annual Meeting . . . . . 86  
ELVIN M. AMEN, MD

## SCIENTIFIC

- Human Bite Wounds of the Hand . . . . . 87  
VICTOR J. FARALLI, MD; ANDY J. SULLIVAN, MD

- Percutaneous Transluminal Coronary Angioplasty  
(PTCA): Initial Experience . . . . . 91  
CLINTON N. CORDER, PHD, MD, et al

- Hydrocarbon Ingestion in Children: Its Sequelae  
and Management . . . . . 95  
THOMAS D. TINKER, MD

## SPECIAL

- Third World Medicine — Adventure in a Work  
of Mercy . . . . . 102  
ROBERT M. MAHAFFEY, MD

## NEWS . . . . . 109

Baby Fae autopsy results released . . . AMA Council maps  
xenograft's history . . . OU lists April CME courses . . . NIH  
issues guidelines for breast cancer treatment . . . Orphan  
Drug Act beginning to make a difference . . . Hepatitis B  
infection risk in school studied . . . Cysticercosis becoming  
health problem in border states . . . Liquid crystal ther-  
mometers effective

## DEPARTMENTS

- |   |     |                                       |     |
|---|-----|---------------------------------------|-----|
| State Department<br>of Health . . . . . | 106 | Index to<br>Advertisers . . . . .     | 138 |
| Deaths . . . . .                        | 118 | Instructions<br>for Authors . . . . . | 138 |
| In Memoriam . . . . .                   | 118 | Auxiliary . . . . .                   | 139 |
| Book Shop . . . . .                     | 119 | The Last Word . . . . .               | 140 |
| Miscellaneous Adv . . .                 | 122 |                                       |     |

Cover art by  
Graphic Art Center, Oklahoma City

The JOURNAL (ISSN 0030-1876) is the official publication of the Oklahoma State Medical Association and is published monthly under the direction of the OSMA Board of Trustees, 601 Northwest Expressway, Oklahoma City, OK 73118. Printed by the Transcript Press, 222 East Eufaula Street, Norman, OK 73069. Second class postage paid at Oklahoma City, OK 73125.

Subscription to the JOURNAL is included in membership fees. Others subscriptions are \$10.00 per year (\$28.00 foreign). Back issues are \$3.00 per copy, subject to availability, or can be obtained on microfilm from University Microfilms International, 300 North Zeeb Road, Department PR, Ann Arbor, MI 48106.

The JOURNAL does not assume responsibility for opinions expressed by the authors. Products and services advertised in the JOURNAL are neither endorsed nor warrantied by the Oklahoma State Medical Association.

Copyright © 1986 by the Oklahoma State Medical Association.

POSTMASTERS: Send all change of address notices to 601 Northwest Expressway, Oklahoma City, OK 73118.

The JOURNAL of the Oklahoma State Medical Association (USPS 285-000)

**“POM is a unique service for physicians who want to concentrate on practicing medicine... plus enjoy their spare time.”**

**CONSIDER...**

- Is the cost of your office overhead too high?
- Is your office **always** up to date in billing, filing insurance claims and receiving payments?
- Do you spend too much time and energy with personnel management or attracting and retaining good employees?
- Are you certain you're receiving maximum payment for insurance, Medicare and Medicaid claims?
- Do you have the accurate, current financial data you need to make wise business decisions about your practice?

**“POM is the most logical alternative to medical office management during these changing times in the medical industry.”**



**Professional Office Management**

For more information contact Bob McLauchlin or Jeff Greene

**405/232-7059**

1110 N. CLASSEN BLVD. SUITE 100  
OKLAHOMA CITY, OK 73106



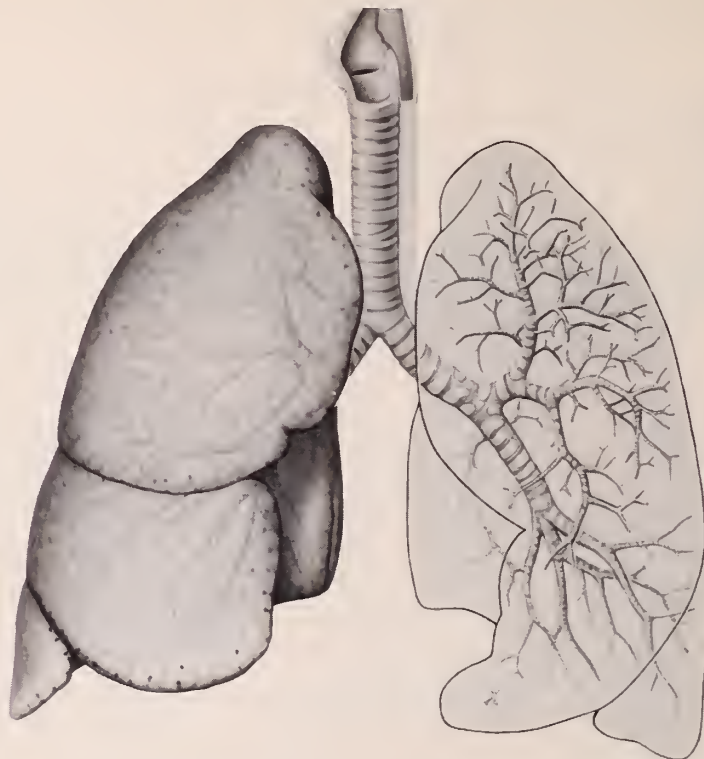
Coming soon from  
Burroughs Wellcome Co. Research

# WELLBUTRIN<sup>®</sup>

(Bupropion HCl)



# Consider the causative organisms...



**Cecilor<sup>®</sup>**  
cefactor

**250-mg Pulvules<sup>®</sup> t.i.d.**

**offers effectiveness against  
the major causes of bacterial bronchitis**

***H. influenzae*, *H. influenzae*, *S. pneumoniae*, *S. pyogenes***  
(ampicillin-susceptible) (ampicillin-resistant)

**Brief Summary:** Consult the package literature for prescribing information.

**Indications and Usage:** Cecilor<sup>®</sup> (cefactor, Lilly) is indicated in the treatment of the following infections when caused by susceptible strains of the designated microorganisms:

Lower respiratory infections, including pneumonia caused by *Streptococcus pneumoniae* (*Diplococcus pneumoniae*), *Haemophilus influenzae* and *S. pyogenes* (group A beta-hemolytic *Streptococcus*).

Appropriate culture and susceptibility studies should be performed to determine susceptibility of the causative organism to Cecilor.

**Contraindication:** Cecilor is contraindicated in patients with known allergy to the cephalosporin group of antibiotics.

**Warnings:** IN PENICILLIN-SENSITIVE PATIENTS, CEPHALOSPORIN ANTIBIOTICS SHOULD BE ADMINISTERED CAUTIOUSLY. THERE IS CLINICAL AND LABORATORY EVIDENCE OF PARTIAL CROSS-ALLERGENICITY OF THE PENICILLINS AND THE CEPHALOSPORINS, AND THERE ARE INSTANCES IN WHICH PATIENTS HAVE HAD REACTIONS, INCLUDING ANAPHYLAXIS, TO BOTH DRUG CLASSES.

Antibiotics, including Cecilor, should be administered cautiously to any patient who has demonstrated some form of allergy, particularly to drugs.

Pseudomembranous colitis has been reported with virtually all broad-spectrum antibiotics including macrolides, semisynthetic penicillins, and cephalosporins; therefore, it is important to consider its diagnosis in patients who develop diarrhea in association with the use of antibiotics. Such colitis may range in severity from mild to life-threatening.

Treatment with broad-spectrum antibiotics alters the normal flora of the colon and may permit overgrowth of clostridia. Studies indicate that a toxin produced by *Clostridium difficile* is one primary cause of antibiotic-associated colitis.

Mild cases of pseudomembranous colitis usually respond to drug discontinuance alone. In moderate to severe cases, manage-

ment should include sigmoidoscopy, appropriate bacteriologic studies, and fluid, electrolyte, and protein supplementation. When the colitis does not improve after the drug has been discontinued, or when it is severe, oral vancomycin is the drug of choice for antibiotic-associated pseudomembranous colitis produced by *C. difficile*. Other causes of colitis should be ruled out.

**Precautions:** General Precautions — If an allergic reaction to Cecilor<sup>®</sup> (cefactor, Lilly) occurs, the drug should be discontinued and, if necessary, the patient should be treated with appropriate agents, e.g., pressor amines, antihistamines, or corticosteroids.

Prolonged use of Cecilor may result in the overgrowth of nonsusceptible organisms. Careful observation of the patient is essential. If superinfection occurs during therapy, appropriate measures should be taken.

Positive direct Coombs' tests have been reported during treatment with the cephalosporin antibiotics. In hematologic studies or in transfusion cross-matching procedures when antiglobulin tests are performed on the minor side or in Coombs' testing of newborns whose mothers have received cephalosporin antibiotics before parturition, it should be recognized that a positive Coombs' test may be due to the drug.

Cecilor should be administered with caution in the presence of markedly impaired renal function. Under such conditions, careful clinical observation and laboratory studies should be made because safe dosage may be lower than that usually recommended.

As a result of administration of Cecilor, a false-positive reaction for glucose in the urine may occur. This has been observed with Benedict's and Fehling's solutions and also with Clinistest<sup>®</sup> tablets but not with Tes-Tape<sup>®</sup> (Glucose Enzymatic Test Strip, USP, Lilly).

Broad-spectrum antibiotics should be prescribed with caution in individuals with a history of gastrointestinal disease, particularly colitis.

**Usage in Pregnancy — Pregnancy Category B —** Reproduction studies have been performed in mice and rats at doses up to 12 times the human dose and in ferrets given three times the maximum

human dose and have revealed no evidence of impaired fertility or harm to the fetus due to Cecilor<sup>®</sup> (cefactor, Lilly). There are, however, no adequate and well-controlled studies in pregnant women. Because animal reproduction studies are not always predictive of human response, this drug should be used during pregnancy only if clearly needed.

**Nursing Mothers —** Small amounts of Cecilor have been detected in mother's milk following administration of single 500-mg doses. Average levels were 0.18, 0.20, 0.21, and 0.16 mcg/ml at two, three, four, and five hours respectively. Trace amounts were detected at one hour. The effect on nursing infants is not known. Caution should be exercised when Cecilor is administered to a nursing woman.

**Usage in Children —** Safety and effectiveness of this product for use in infants less than one month of age have not been established.

**Adverse Reactions:** Adverse effects considered related to therapy with Cecilor are uncommon and are listed below.

**Gastrointestinal symptoms** occur in about 2.5 percent of patients and include diarrhea (1 in 70).

Symptoms of pseudomembranous colitis may appear either during or after antibiotic treatment. Nausea and vomiting have been reported rarely.

**Hypersensitivity reactions** have been reported in about 1.5 percent of patients and include morbilliform eruptions (1 in 100), Pruritus, urticaria, and positive Coombs' tests each occur in less than 1 in 200 patients. Cases of serum-sickness-like reactions (erythema multiforme or the above skin manifestations accompanied by arthritides/arthralgia and, frequently, fever) have been reported.

These reactions are apparently due to hypersensitivity and have usually occurred during or following a second course of therapy with Cecilor. Such reactions have been reported more frequently in children than in adults. Signs and symptoms usually occur a few days after initiation of therapy and subside within a few days after cessation of therapy. No serious sequelae have been reported.

Antihistamines and corticosteroids appear to enhance resolution of the syndrome.

Cases of anaphylaxis have been reported, half of which have

occurred in patients with a history of penicillin allergy. Other effects considered related to therapy included eosinophilia (1 in 50 patients) and genital pruritus or vaginitis (less than 1 in 100 patients).

**Causal Relationship Uncertain —** Transitory abnormalities in clinical laboratory test results have been reported. Although they were of uncertain etiology, they are listed below to serve as alerting information for the physician.

**Hepatic —** Slight elevations in SGOT, SGPT, or alkaline phosphatase values (1 in 40).

**Hematopoietic —** Transient fluctuations in leukocyte count, predominantly lymphocytosis occurring in infants and young children (1 in 40).

**Renal —** Slight elevations in BUN or serum creatinine (less than 1 in 500) or abnormal urinalysis (less than 1 in 200).

[061782R]

**Note:** Cecilor<sup>®</sup> (cefactor, Lilly) is contraindicated in patients with known allergy to the cephalosporins and should be given cautiously to penicillin-allergic patients.

Penicillin is the usual drug of choice in the treatment and prevention of streptococcal infections, including the prophylaxis of rheumatic fever. See prescribing information.

© 1984, ELI LILLY AND COMPANY



Additional information available to the profession on request from Eli Lilly and Company, Indianapolis, Indiana 46285. Eli Lilly Industries, Inc., Carolina, Puerto Rico 00630.

400441



# Motrin<sup>®</sup> 800 TABLETS mg

ibuprofen



Extra strength  
Convenience  
Economy

Upjohn



A Century  
of Caring  
1886-1986



Before prescribing, see complete prescribing information in SK&F CO. literature or PDR. The following is a brief summary.

\*

#### WARNING

This drug is not indicated for initial therapy of edema or hypertension. Edema or hypertension requires therapy titrated to the individual. If this combination represents the dosage so determined, its use may be more convenient in patient management. Treatment of hypertension and edema is not static, but must be reevaluated as conditions in each patient warrant.

**Contraindications:** Concomitant use with other potassium-sparing agents such as spironolactone or amiloride. Further use in anuria, progressive renal or hepatic dysfunction, hyperkalemia. Pre-existing elevated serum potassium. Hypersensitivity to either component or other sulfonamide-derived drugs.

**Warnings:** Do not use potassium supplements, dietary or otherwise, unless hypokalemia develops or dietary intake of potassium is markedly impaired. If supplementary potassium is needed, potassium tablets should not be used. Hyperkalemia can occur, and has been associated with cardiac irregularities. It is more likely in the severely ill, with urine volume less than one liter/day, the elderly and diabetics with suspected or confirmed renal insufficiency. Periodically, serum  $K^+$  levels should be determined. If hyperkalemia develops, substitute a thiazide alone, restrict  $K^+$  intake. Associated widened QRS complex or arrhythmia requires prompt additional therapy. Thiazides cross the placental barrier and appear in cord blood. Use in pregnancy requires weighing anticipated benefits against possible hazards, including fetal or neonatal jaundice, thrombocytopenia, other adverse reactions seen in adults. Thiazides appear and triamterene may appear in breast milk. If their use is essential, the patient should stop nursing. Adequate information on use in children is not available. Sensitivity reactions may occur in patients with or without a history of allergy or bronchial asthma. Possible exacerbation or activation of systemic lupus erythematosus has been reported with thiazide diuretics.

**Precautions:** The bioavailability of the hydrochlorothiazide component of 'Dyazide' is about 50% of the bioavailability of the single entity. Theoretically, a patient transferred from the single entities of Dyrenium (triamterene, SK&F CO.) and hydrochlorothiazide may show an increase in blood pressure or fluid retention. Similarly, it is also possible that the lesser hydrochlorothiazide bioavailability could lead to increased serum potassium levels. However, extensive clinical experience with 'Dyazide' suggests that these conditions have not been commonly observed in clinical practice. Do periodic serum electrolyte determinations (particularly important in patients vomiting excessively or receiving parenteral fluids, and during concurrent use with amphotericin B or corticosteroids or corticotropin [ACTH]). Periodic BUN and serum creatinine determinations should be made, especially in the elderly, diabetics or those with suspected or confirmed renal insufficiency. Cumulative effects of the drug may develop in patients with impaired renal function. Thiazides should be used with caution in patients with impaired hepatic function. They can precipitate coma in patients with severe liver disease. Observe regularly for possible blood dyscrasias, liver damage, other idiosyncratic reactions. Blood dyscrasias have been reported in patients receiving triamterene, and leukopenia, thrombocytopenia, agranulocytosis, and aplastic and hemolytic anemia have been reported with thiazides. Thiazides may cause manifestation of latent diabetes mellitus. The effects of oral anticoagulants may be decreased when used concurrently with hydrochlorothiazide; dosage adjustments may be necessary. Clinically insignificant reductions in arterial responsiveness to norepinephrine have been reported. Thiazides have also been shown to increase the paralyzing effect of nondepolarizing muscle relaxants such as tubocurarine. Triamterene is a weak folic acid antagonist. Do periodic blood studies in cirrhotics with splenomegaly. Antihypertensive effects may be enhanced in post-sympathectomy patients. Use cautiously in surgical patients. Triamterene has been found in renal stones in association with the other usual calculus components. Therefore, 'Dyazide' should be used with caution in patients with histories of stone formation. A few occurrences of acute renal failure have been reported in patients on 'Dyazide' when treated with indomethacin. Therefore, caution is advised in administering nonsteroidal anti-inflammatory agents with 'Dyazide'. The following may occur: transient elevated BUN or creatinine or both, hyperglycemia and glycosuria (diabetic insulin requirements may be altered), hyperuricemia and gout, digitalis intoxication (in hypokalemia), decreasing alkali reserve with possible metabolic acidosis. 'Dyazide' interferes with fluorescent measurement of quinidine. Hypokalemia is uncommon with 'Dyazide', but should it develop, corrective measures should be taken such as potassium supplementation or increased dietary intake of potassium-rich foods. Corrective measures should be instituted cautiously and serum potassium levels determined. Discontinue corrective measures and 'Dyazide' should laboratory values reveal elevated serum potassium. Chloride deficit may occur as well as dilutional hyponatremia. Concurrent use with chlorpropamide may increase the risk of severe hyponatremia. Serum PBI levels may decrease without signs of thyroid disturbance. Calcium excretion is decreased by thiazides. 'Dyazide' should be withdrawn before conducting tests for parathyroid function.

Thiazides may add to or potentiate the action of other antihypertensive drugs.

Diuretics reduce renal clearance of lithium and increase the risk of lithium toxicity.

**Adverse Reactions:** Muscle cramps, weakness, dizziness, headache, dry mouth; anaphylaxis, rash, urticaria, photosensitivity, purpura, other dermatological conditions; nausea and vomiting, diarrhea, constipation, other gastrointestinal disturbances; postural hypotension (may be aggravated by alcohol, barbiturates, or narcotics). Necrotizing vasculitis, paresthesias, icterus, pancreatitis, xanthopsia and respiratory distress including pneumonitis and pulmonary edema, transient blurred vision, sialadenitis, and vertigo have occurred with thiazides alone. Triamterene has been found in renal stones in association with other usual calculus components. Rare incidents of acute interstitial nephritis have been reported. Impotence has been reported in a few patients on 'Dyazide', although a causal relationship has not been established.

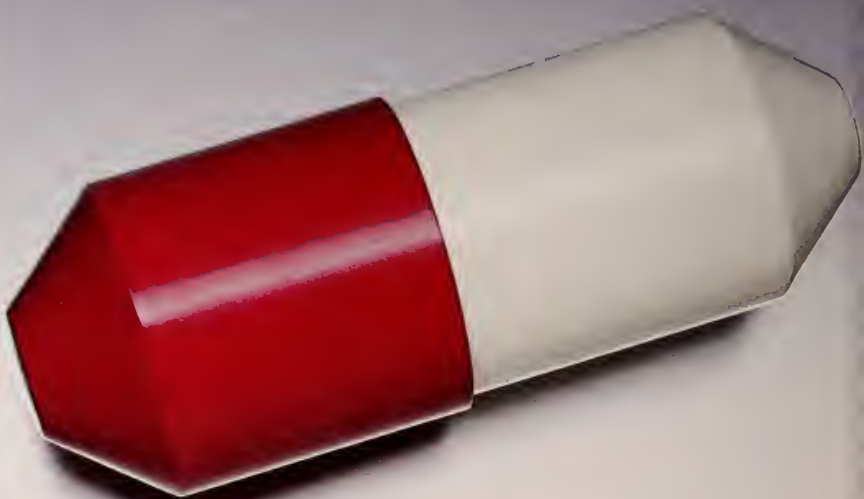
**Supplied:** 'Dyazide' is supplied as a red and white capsule, in bottles of 1000 capsules; Single Unit Packages (unit-dose) of 100 (intended for institutional use only); in Patient-Pak™ unit-of-use bottles of 100.

BRS-DZ-139

# In Hypertension\*... When You Need to Conserve $K^+$

## Remember the Unique Red and White Capsule: Your Assurance of SK&F Quality

Serum  $K^+$  and BUN should be checked periodically (see Warnings and Precautions).



### Potassium-Sparing

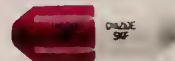
# DYAZIDE®

25 mg Hydrochlorothiazide/50 mg Triamterene/SKF

### Over 19 Years of Confidence

a product of  
**SK&F CO.**  
Carolina, P.R. 00630

The unique  
red and white  
Dyazide® capsule:  
Your assurance of  
SK&F quality.





# THE ARABIAN. . .



**Investment designed to be  
ridden and enjoyed.**



**WINDY MEADOW FARM**

24401 N. MAY AVE. EDMOND, OKLAHOMA 73034 (405) 341-3891



# NOTICE

## TO ALL PLICO-INSURED PHYSICIANS

The 1986 PLICO professional liability insurance policy you received contains a special endorsement or requirement making attendance at an OSMA/PLICO-sponsored Loss Prevention Seminar **mandatory** at least once in every three years. If a physician has never attended a seminar, he or she must attend one during 1986. If a physician has not attended a program since 1983, they must attend this year, also. Any physician needing to attend in 1986, and failing to do so, will not be eligible for renewal of their insurance for calendar year 1987.

### **SEMINAR ATTENDANCE MANDATORY**

#### **1986 Seminar Schedule\***

---

May 10 (OSMA Annual Meeting)	Saturday 8-11 a.m.	Tulsa
May 24	Saturday 2-5 p.m.	Oklahoma City
June 28	Saturday 2-5 p.m.	Woodward
September 10	Wednesday 6-9 p.m.	Lawton
September 17	Wednesday 6-9 p.m.	Muskogee
September 24	Wednesday 6-9 p.m.	McAlester
October 8	Wednesday 6-9 p.m.	Enid
October 15	Wednesday 6-9 p.m.	Oklahoma City
October 16	Thursday 6-9 p.m.	Tulsa

\*All PLICO insureds will receive detailed registration information for each of these seminars by direct mail.

## On Becoming Generic

Most generic drugs are, I assume, generic from the moment of their creation. They were never intended to have proper names. They are sold and bought as just plain aspirin or prednisone or tetracycline. In general, they cost less than their brand name cousins, and that fact represents their sole attraction. They appeal to bargain hunters.

I rarely prescribe generic drugs because I don't trust them. I don't know who takes responsibility for their safety and effectiveness.

Most doctors, on the other hand, didn't intend to become generic doctors. In fact, I never thought there would ever be such a thing as a generic doctor, which gives you some idea about how old-fashioned I am.

Every year, more and more proper name doctors disappear and more generic doctors appear. They lose themselves in multi-specialty groups, in emergency rooms and HMOs and PPOs and in morning-noon-and-night clinics and an assortment of do-care insurance groups whose doctors are virtually nameless. They are generic doctors. In general, I assume, they cost less than their proper name colleagues, and I wonder if that fact represents their sole attraction. They appeal to bargain hunters.

In the case of the generic doctor, however, the bargain hunter is not the patient but a company or

a corporation which buys the doctor's services and then sells them to a group of prospective patients. As it usually works out, a highly publicized, brand name, profit-making corporation buys services from a group of generic physicians for one price and sells them to a group of generic patients at another price. Naturally, the corporation makes no profit on the transaction.

It does seem a bit strange that a doctor will agree to reduce his fees to a corporation entrepreneur who selects patients for him, while not offering the same reduction to a patient who selected him. Strange, indeed, but that's the way it is with big business and generic doctors. Most corporations want to know what you are, not who you are.

Given a choice, I don't think I would select a generic doctor to take care of me or any member of my family. Given a choice, I'll select one with a proper name.

I wonder how long it will be before I have no choice.

How long will it be before I become generic?

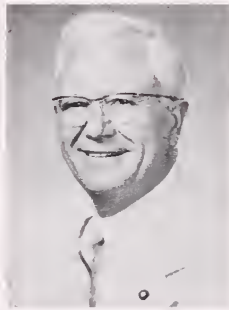
—MRJ

## **1986 OSMA Annual Meeting**

The time has come to think about scheduling this important event into your plans.

Dr Tomsovik and his committee members have developed a program of education and entertainment for both members and spouses that should be valuable to all. (Prizes, too!)

Of course, official business of the Board of Trustees and House of Delegates will be valuable and necessary to the future of medicine in Oklahoma. Those of you who have urgent matters



to be considered should prepare and submit your resolutions to both county and state offices as soon as possible.

I am looking forward to seeing all of you in Tulsa in May.

**GET INVOLVED — PARTICIPATE**

Sincerely,

*Elvin M. Amen, M.D.*



# Human Bite Wounds of the Hand

VICTOR J. FARALLI, MD, and J. ANDY SULLIVAN, MD

Twenty-seven patients with human bite wounds of the hand were reviewed to assess the complication rate and its relationship to the preliminary care and type of debridement. The 57% complication rate, which includes two amputations, emphasizes the morbidity associated with this wound. The time interval between injury and definitive care proved to be the most important determinant influencing the complication rate. It is recognized that this interval was increased at times by inadequate initial treatment. *Eikenella corrodens*, a significant pathogen in these wounds, was isolated in two cases. Penicillin G and either a penicillinase-resistant penicillin or a cephalosporin are usually effective and can be used initially until cultures indicate appropriate therapy. Antibiotics are only a part of the treatment. Early recognition and aggressive treatment are the keystones of management.

Human bite wounds of the hand are known to cause significant damage. Mason and Koch in 1930 presented one of the earliest series of human bite wounds. They discussed the pathophysiology of the injury, especially as it related to the clenched fist.<sup>1</sup> This describes the tendency of the injured extensor mechanism to retract after the injury, thereby walling off deeper structures, which have been inoculated with human mouth flora. A hypoxic atmosphere favoring anaerobic organisms is produced. They accurately described the three anatomic spaces of the

dorsum of the hand (subcutaneous, subaponeurotic, and joint) and their relationship to the infectious process. During the preantibiotic era, surgical debridement was the mainstay of treatment, while electrocautery, nitric acid, or zinc peroxide were used as adjuncts.<sup>2-5</sup>

Since the introduction of antibiotics, many articles have been written concerning management of these wounds.<sup>5-10</sup> Surgical treatment has remained paramount in their proper management. These infections tend to have multiple pathogens involved but with streptococcus and staphylococcus predominating. The anaerobic organism may be very virulent. Attention has been focused recently on *Eikenella corrodens*, a gram-negative rod that has emerged as a significant pathogen in human bite wounds.<sup>11,12</sup>

Despite the availability of antibiotics and aggressive treatment programs, we were impressed with the significant morbidity of these wounds. The following review was performed to identify factors involved in this morbidity and to disseminate them to our community.

## Materials and Methods

Twenty-eight consecutive patients treated at the State of Oklahoma Teaching Hospitals (OTH) for human bite wounds of the hand were reviewed. The age, sex, duration of hospitalization, and duration since injury were noted. The type of debridement, organism obtained, and antibiotic used were noted. We were particularly interested in the complications that occurred and whether they could be related to any delay between the time of injury and the admin-

From the Department of Orthopaedic Surgery and Rehabilitation, University of Oklahoma Health Sciences Center, Oklahoma City, Oklahoma.

Address reprint requests to J. Andy Sullivan, MD, Oklahoma Children's Memorial Hospital, Department of Orthopaedic Surgery, PO Box 26307, Oklahoma City, Oklahoma 73126.

Table 1. — Complications of Human Bite Wounds

Septic joint	6
Joint violated, no sepsis	1
Extensor tendon laceration	2
Chronic osteomyelitis	2
Septic tenosynovitis	6
Amputation	2
Deep space infection	2

Table 2. — Overall Complication Rate

Total number of complications	21
Cases without a complication	12 (43%)
Cases with a complication	16 (57%)

istration of what we felt was adequate treatment. A complication was defined as any delay in healing or residual impairment as a result of the injury. All patients were admitted for parenteral antibiotics and daily wound inspections. All had debridement either in the operating room or the emergency room.

## Results

The average age of the patients was 28.3 years (range 13-52). There were 21 males and 7 females. The average delay from the time of injury to adequate treatment was 4.9 days. In some cases this could be related to the fact that the patients hid the mechanism of injury or denied they had been fighting. In some cases, however, the severity of this type wound was not appreciated, and initial treatment was obtained on an outpatient basis and consisted of oral antibiotics. Hospitalization averaged 6.9 days.

Sixteen of 28 patients developed one of the complications listed in Table 1. There were a total of 21 complications in these 16 patients (Table 2).

Multiple organisms were cultured from the wounds of 16 individuals (57.5%, Table 3). In five patients (17.8%) only 1 organism was isolated. In 7 cases (35.7%) we were unable to culture an organism, probably because of previous antibiotic therapy. A wide variety of organisms was obtained (Table 4).

Nine patients were seen within 24 hours of injury. Seven of these were treated in the emergency room with superficial debridement and 2 were taken to the operating room for a more detailed debridement. Two complications were noted in these 9 patients (22%, Table 5). One patient taken to the operating room was noted to have a complete transection of the extensor mechanism from the original bite. A second patient developed a septic metacarpophalangeal joint of the fifth ray.

Nineteen patients in the series were seen for the first time more than 24 hours after the injury (Table 5). Nine had local wound care in the emergency room and 10 were taken to the operating room. Twelve of 19 developed a complication (63%). The majority of the complications (osteomyelitis, septic arthritis, deep space infection, septic tenosynovitis, and ampu-

tation) occurred in this group. It is acknowledged that more of these patients were taken to the operating room because they had greater evidence of infection. This then does not imply that the lower complication rate in the group treated in the emergency room was due to the method of debridement but rather that more could be managed there because the infection was detected early.

Some patients were seen and received initial care at other hospitals. Some had denied that their wound was due to a human bite. Some had received oral antibiotics and a few had undergone primary closure of their wounds. All patients presenting in this manner required debridement carried out in the operating room.

## Discussion

The true incidence of human bite wounds is unknown. Many individuals do not seek medical care, or the wound is not recognized as arising from a bite. It follows that we cannot establish the rate of infections after such wounds; nevertheless, experience teaches us that there is a significant morbidity and on occasion mortality.

In the majority of infections (57.5%), 2 or more pathogens were isolated. While streptococcal and staphylococcal organisms predominated, a wide variety of organisms were isolated (Table 4).

*Eikenella corrodens* was found in 2 cases (7%), both times in conjunction with other organisms. This supports the concept that *Eikenella* is an opportunistic pathogen that depends on more aggressive organisms to invade traumatized tissue.<sup>11-13</sup>

The presence of aerobic organisms, extensor tendon retraction to the depths of the wound, and wound closure also favor the development of this facultative anaerobic organism. *Eikenella* is best cultured under conditions of high CO<sub>2</sub> tension.

*E. corrodens* is quite sensitive to penicillin, inconsistently sensitive to cephalosporins, and tends to be resistant to oxacillin, nafcillin, methicillin, clindamycin, and most aminoglycosides.<sup>11</sup> Thus penicillin is the drug of choice but offers a narrow spectrum of coverage. For these wounds a combination of penicillin G and a cephalosporin or penicillinase-resistant penicillin provide adequate coverage until the initial culture results are obtained.



Table 3. — Number of Organisms Isolated Per Case

No organism obtained	7	35.7%
Multiple organisms	16	57.5%
Single organism	5	17.8%
Total	28	

The complication rate from human bite wounds in this small series rose sharply when treatment was delayed for more than 24 hours. This delay proved to be the most important variable in predicting a successful outcome. Given that the history of these wounds tends to be unreliable, the delay is also the most difficult factor to assess.

There were, however, iatrogenic errors that bear mentioning. On two occasions human bite wounds were sutured closed in the emergency room after local debridement. One patient did not admit that his wound had been from a human bite. Extensive surgical debridement four days later was required to control a grossly infected wound. A second patient admitted to fighting but also had undergone primary wound closure. She presented with a grossly purulent wound. After two debridements, it became obvious that the finger could not be salvaged and a ray amputation was performed. The other amputation in this series occurred in a diabetic patient, underscoring the serious nature of the wound in those patients with increased susceptibility to infection.

Another patient was treated for 10 days with intravenous antibiotics but did not undergo surgical debridement. Upon arrival following referral he had extensive flexor tenosynovitis which required debridement of the flexor profundus tendon. Antibiotics are not a substitute for surgical debridement, which should be performed as often as deemed necessary. One patient in this series had eight operative procedures before his five-day-old human bite wound was brought under control.

One must be suspicious when encountering patients who have cuts on the dorsum of the hand.

Table 4. — Organisms Isolated

Alpha streptococcus	9
<i>staphylococcus epidermidis</i>	8
Diphtheroids	8
<i>Staphylococcus aureus</i>	7
Beta streptococcus	3
Bacteroides	3
<i>Eikenella corrodens</i>	2
<i>Klebsiella pneumoniae</i>	1
<i>Clostridium perfringens</i>	1
Enterobacter	1
Peptococcus	1
Fusobacterium	1
<i>Streptococcus viridans</i>	1

While some cuts are obviously caused by teeth, others are mere ellipses over the knuckles. Many patients claim to have struck a wall or other object. The authors have also seen a patient outside this series who eventually required a below-the-knee amputation following a human bite to the calf, and a child with a massive infection of a forehead wound sustained when he ran into the teeth of another child (this wound also was closed by a physician in an emergency room).

## Conclusions


We offer the following guidelines for the management of human bite wounds:

1. Adequate tetanus prophylaxis should be assured.
2. Gram stain, aerobic, anaerobic, and CO<sub>2</sub> cultures should be obtained from all wounds prior to administration of antibiotics.
3. Empiric antibiotics should include penicillin G and either a cephalosporin or penicillinase-resistant penicillin. These should be adjusted as culture results are obtained.
4. Surgical care of wounds is paramount. We do not endorse routine debridement in the emergency room; it should be performed there only when adequate facilities for anesthesia, hemostasis, and instrumentation are available. If initial exploration

Table 5. — Complication Rate Related to Duration Between Time of Injury and Treatment and to Site of Treatment

	9 Patients <24 hr	Number of Complications	19 Patients >24 hr.	Number of Complications
Emergency room	7	1 (14.3)	9	3 (33%)
Operating room	2	1 (50%)	10	9 (90%)
Overall complication rate	9 patients	2/9 (22%)	19 patients	12/19 (63%)

reveals extensive damage, the procedure should be terminated and the patient taken to the operating room.

5. Given the unreliability of the history of these patients, they should be admitted to the hospital for parenteral antibiotic therapy and daily examination. It is the exceptional patient who can be treated successfully as an outpatient. 

#### References

1. Mason ML, Koch SL: Human bite infections of the hand with a study of the routes of extension of infection from the dorsum of the hand *Surg Gynec and Obstet*, 51:591-625, 1930.
2. Lowry T McG: The surgical treatment of human bites. *Annals of Surg*, 104(6):1103-1106, December 1936.
3. Maier RL: Human bite infections of the hand. *Annals of Surg*, 106(3):423-427, September 1937.
4. Speirs RE: The prevention of human bite infections. *Surg Gynec and Obstet* 72:619-621, 1941.
5. Welch CE: Human bite infections of the hand. *New Eng J Med* 215(20):901-905, November 1936.
6. Chuinard RG, D'Ambrosia RD: Human bite infections of the hand. *J Bone Joint Surg*, 59-A(3):416-418, April 1977.
7. Farmer CB, Mann RJ: Human bite infections of the hand. *Southern Medical Journal*, Vol 59:515-518, May 1966.
8. Kilgore E: Hand infections. *J Hand Surg*, 8(5), Part II:723-726, September 1983.
9. Peeples C, Boswick JA Jr, Scott FA: Wounds of the hand contaminated by human or animal saliva. *J of Trauma*, 20(5):383-389, April 1980.
10. Shields C, Patzakis MJ, Meyers H, Harvey JP Jr: Hand infections secondary to human bites. *J of Trauma*, 15(3):235-236, March 1975.
11. Goldstein E, Barones M, Miller T: *Eikenella corrodens* in hand infections. *J Hand Surg*, 8(5), Part I:563-567, September 1983.
12. Schmidt DR, Heckman JD: *Eikenella corrodens* in human bite infections of the hand. *J of Trauma*, 23(6):478-481, June 1983.
13. Robson MC, Schmidt D, Higgins JP: Cefamandole therapy in hand infections. *J Hand Surg*, 8(5), Part I:560-562, September 1983.

*Victor J. Faralli, MD, earned his medical degree at Temple University School of Medicine in 1979 and was certified by the American Board of Orthopedic Surgeons in 1985. He is a captain in the US Army Medical Corps at Reynolds Army Hospital, Fort Sill.*

*J. Andy Sullivan, MD, is an associate professor, Department of Orthopedic Surgery and Rehabilitation, University of Oklahoma Health Sciences Center. He is a 1969 graduate of Washington University School of Medicine, St Louis, and was board certified in 1975. Dr Sullivan is a member of the Pediatric Orthopedic Society, American Academy of Orthopedics, American Academy of Pediatrics, and Scoliosis Research Society.*



## THE VOICE OF OKLAHOMA MEDICINE — MAKE IT HEARD!

Across the state your friends, neighbors and community leaders share a growing interest in today's medicine — its technological triumphs and continuing research, its socioeconomic concerns and plans for the future. Yet the vast majority of them never see the OSM JOURNAL, never have a chance to read firsthand about medicine right here in Oklahoma.

You can give them that chance. With gift subscriptions, just \$10 a year, you can put the JOURNAL in the hands of these interested readers every month.

Send their names and addresses with your check for \$10 per subscription to: OSM JOURNAL, 601 Northwest Expressway, Oklahoma City, OK 73118.

Do it today. Make sure the voice of Oklahoma medicine is heard in your hometown.



# Percutaneous Transluminal Coronary Angioplasty (PTCA): Initial Experience

CLINTON N. CORDER, PhD, MD, et al\*

**Percutaneous transluminal coronary angioplasty (PTCA) was completed (stenosis dilated) in 154 of 171 patients subjected to the procedure. The experience and complications were similar to those reported in the National Heart, Lung and Blood Institute Registry. This report describes the initial implementation of PTCA at a 560-bed hospital in Oklahoma during the first two years of its application.**

Changes in the management of patients with ischemic heart disease have evolved rapidly in the past decade. Percutaneous transluminal coronary angioplasty (PTCA) may well represent the most significant advance of the past decade for patients with ischemic heart disease.

PTCA was first performed by Andrew Gruentzig in 1977 in Switzerland.<sup>1</sup> This modified cardiac catheterization technique consists of dilating the stenotic segments within coronary arteries by means of pressure inflation of a balloon-tipped catheter.

This procedure will be performed in more than 25,000 patients in the United States this year.

Our progress report summarizes the development of PTCA at our institution during the first two years of its clinical use.

## Methods

The protocols for PTCA were developed by collaboration between cardiologists and cardiovascular surgeons. The resources and institutional support from Saint Anthony Hospital, a 560-bed general medical and surgical hospital, complemented the development of the PTCA program.

Patients undergoing PTCA were selected from patients undergoing selective coronary arteriography during the same two-year period through September, 1984. In general, patients undergoing PTCA were chosen because coronary arterial anatomy was considered suitable for angioplasty: predominant single-vessel disease, short subtotal occlusions, and no contraindications to coronary artery bypass grafting.

The C. R. Anthony angioplasty suite is shown in Figure 1. Special high resolution television monitors with playback capability coupled to multipositional fluoroscopy beams comprise the essential features of the angioplasty imaging equipment. Professional staffing provided an additional element of patient safety. Two cardiologists participated in each PTCA procedure. Cardiovascular surgeons remained immediately available, and the cardiovascular surgical suite was reserved in readiness. An intra-aortic balloon circulatory assist pump with trained technical staff was on standby in the angioplasty suite.

A representative PTCA catheter system is shown simplified in Figure 2. A coronary catheter (E) with guidewire (F) is placed at the ostium of the coronary artery. The wire (E) is removed and a PTCA balloon

\*Report prepared by members of the C. R. Anthony Angioplasty Center at Saint Anthony Hospital, Oklahoma City. Contributing authors: R. Darryl Fisher, MD, Chief of Thoracic Surgery; Gerald L. Honick, MD, Chief of Cardiology; Glen Hallum, MD, Chief of Radiology; Ifikhar Ahmad, MD; Zaheer U. Baber, MD; S. Kumar Bhatia, MD; Linda F. Deere, MD; Charles C. Freeman, MD; J. Hartsuck, MD; W. D. Hawley, MD; Jerome P. Mathias, MD; Michael Mowdy, DO; Marvin D. Peyton, MD; Raymond Rose, MD; Stephen M. Spielman, MD; Jan Voda, MD; and Muhammad Yasin, MD.

Address correspondence to Clinton N. Corder, PhD, MD, Oklahoma Cardiovascular Institute, 1000 North Lee, PO Box 205, Oklahoma City, Oklahoma 73101.



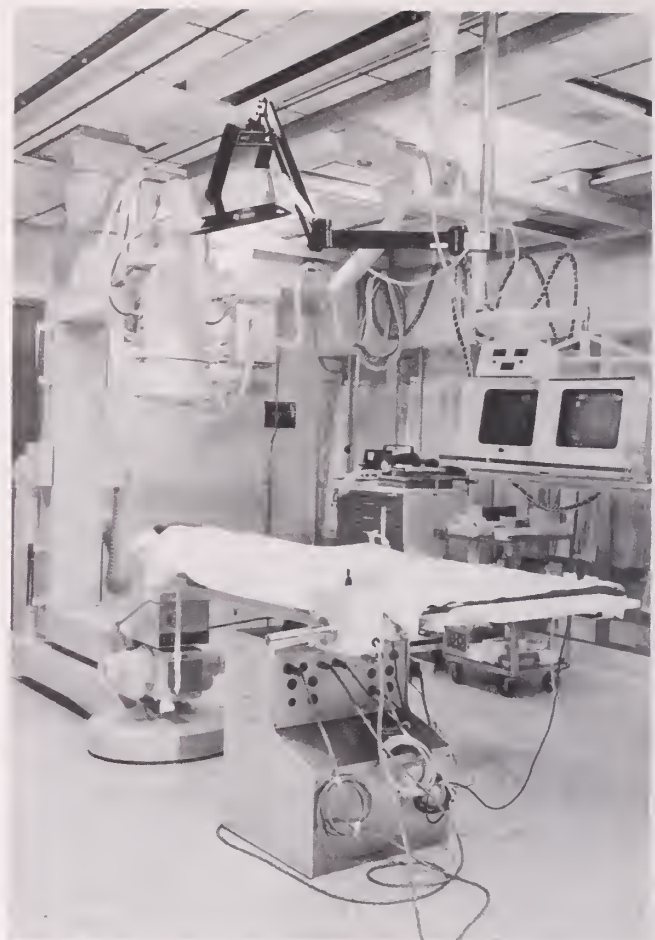
Fig 1.—Angioplasty suite.

catheter (A & C) with guidewire (B) are inserted and negotiated across a stenosis. Then the balloon is expanded by pressure (D) to dilate the stenosis. Radiocontrast material is injected through catheters as necessary to visualize progress (C or E). Pressures may be recorded simultaneously from the large catheter at site (G) and from the PTCA catheter at site (H).

A representative radiographic film is shown in Figure 3. In this case, two PTCA catheters are in place simultaneously to dilate a stenotic artery at an arterial bifurcation (kissing balloon technique).

An arteriographic coding system patterned after the American Heart Association and Gensini schema was used to compare the angioplasty results individually and for the group. The arteriographic findings in each patient were measured independently by three physicians. The degree of arterial narrowing was assigned to one of 5 categories:

Class I	$0 \leq 25\%$
Class II	$> 25 \leq 50\%$
Class III	$> 50 \leq 75\%$
Class IV	$> 75 \leq 90\%$
Class V	$> 90 \leq 100\%$



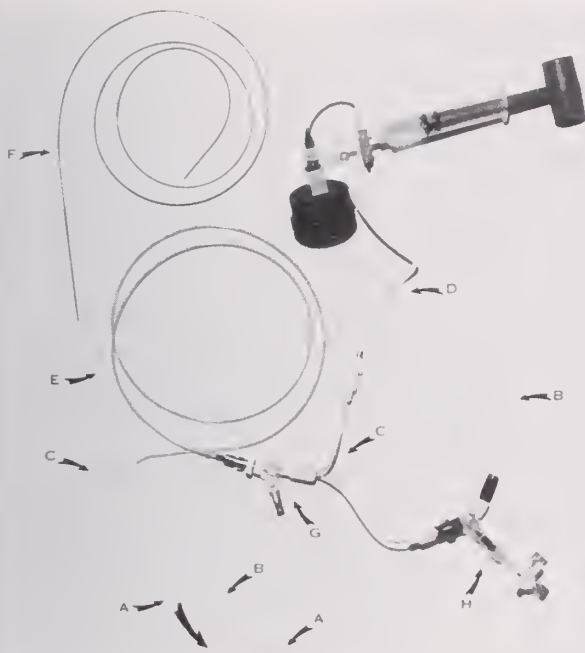
PTCA was considered performed whenever a guiding wire or an angioplasty balloon catheter was introduced into the coronary artery ostium. PTCA was considered completed if the balloon catheter could be negotiated across the site of stenosis.

## Results

One hundred seventy-one patients underwent PTCA during this initial experience. There were 134 men and 37 women ranging in age from 28 to 79 years. A progressive increase in utilization of PTCA occurred during this interval to a present utilization in over 20 patients per month.

PTCA was completed in 154 attempts, while the other patients had arteries not amenable to angioplasty because the balloon catheter could not be negotiated across the lesion. The results of completed PTCA are shown in Table 1. Substantial improvement (change in arteriographic classification of the arteriographic appearance) was observed. The left anterior descending (LAD) arteries subjected to PTCA had stenotic lesions with greater than 75% stenosis (Class IV and V) in 87% of the cases before PTCA.





**Fig 2.**—PTCA catheter and guidewire.

Post-PTCA, 91% of LAD stenoses were dilated to significantly less stenosis (Class I, II, and III). Similar data for the right coronary and circumflex arteries revealed 90% stenoses reduced to class I-III post-PTCA. However, residual stenotic lesions in the Class II range remained in approximately half of the coronary arteries subjected to PTCA.

Eighty percent of patients (137/171) in which PTCA was attempted or completed during this period were discharged from the hospital by the fifth day following angioplasty.

Coronary artery bypass grafting (CABG) was performed in 21 patients in which the PTCA procedure resulted in less than 20% reduction in the arterial stenosis. In 16 of these patients, the surgical proce-

dures were scheduled the same day as PTCA, while the remainder were scheduled at an elective time.

There were no deaths during the 171 procedures of PTCA. However, three patients died during the hospitalization, two after PTCA of the right coronary artery (RCA): one died of right ventricular failure due to massive pulmonary emboli following elective CABG performed the day after an incompleting RCA angioplasty; the second death occurred 5 days after CABG following an incomplete RCA PTCA. A third patient died of a myocardial infarction and cardiogenic shock for which PTCA was attempted as a lifesaving desperation measure. Two patients required blood transfusions. A coagulation abnormality was thought to contribute to the bleeding complication in each.

## Discussion

PTCA has now become an accepted procedure in the management of patients with ischemic heart disease. Frequently, it is the priority and first treatment consideration for the patient with symptomatic coronary artery disease.

The indications for PTCA continue to expand.<sup>2-4</sup> Currently PTCA is indicated for the patient with newly diagnosed angina pectoris having primarily single-vessel obstruction and positive ECG and thallium stress tests. However, double- and multiple-vessel PTCA is being performed here and elsewhere on an investigative basis.

PTCA is not a curative solution to ischemic heart disease, although substantial palliation with PTCA can be anticipated. The PTCA procedure is not feasible in many patients because of diffuse arterial disease and inability to pass the balloon catheter across the arterial narrowing. Furthermore, recurrence of the stenosis after an initially successful PTCA occurs



**Fig 3.**—Example of use of multiple catheters (kissing technique) in PTCA.

Table 1. — Arteriographic Classification in 154 Patients Before and After Completed PTCA

Class	Severity of Stenosis % Narrow	Coronary Artery							
		LAD		RCA		Cfx		Other	
		Pre	Post	Pre	Post	Pre	Post	Pre	Post
V	>90 ≤ 100%	34	4	26	3	20	2	5	2
IV	>75 ≤ 90%	29	2	11	0	7	1	5	1
III	>50 ≤ 75%	8	12	4	10	3	6	1	5
II	>25 ≤ 50%	1	45	0	24	0	14	0	2
I	> 0 ≤ 25%	0	9	0	4	0	7	0	1
		72	72	41	41	30	30	11	11

LAD = left anterior descending, RCA = right coronary artery, Cfx = circumflex, Other = branches from LAD, RCA, or Cfx.

in 20% to 40% of patients. Repeat PTCA is possible for these patients.

The mechanism of PTCA is not well understood, but the enhanced patency most likely results from stretching of the arteriosclerotic lesion as well as actual fracturing and cleaving of the stenotic plaque.<sup>5</sup> This pathophysiologic mechanism may account for the rather high incidence of early recurrence of stenosis.

Complication rates similar to those outlined in this experience have been reported by the National Heart Lung and Blood Institute PTCA Registry.<sup>6,7</sup> With continued experience and improved equipment technology, the complication rate is likely to become even less. It has become evident to us that the recently available steerable-tip catheter systems and streamlined dilating catheters will extend the usefulness of this procedure.<sup>8-10</sup>

PTCA has now achieved an important place in the management of patients with symptomatic coronary artery disease. Angioplasty must be a multidis-

ciplinary and institutional approach to the patient. In this manner, a sophisticated cardiovascular technology can be developed and applied in a cost-effective, orderly, and safe manner.

#### References

1. Gruentzig AR: Transluminal dilation of coronary artery stenosis, *Lancet* 1: 263 (1978).
2. Willman VL: Percutaneous transluminal coronary angioplasty, a 1985 perspective, *Circ* 71: 189-192 (1985).
3. Mock MD, Holmes DR, Vlietstra RE, et al: Percutaneous transluminal coronary angioplasty (PTCA) in the elderly patient: Experience in the National Heart Lung and Blood Institute PTCA Registry, *Am J Cardio* 53: 89C-91C (1984).
4. Reeder GS, Krishan I, Nobrega FT, Naesaeus J, Kelly M, Christianson JB, and McAfee MK: Is percutaneous coronary angioplasty less expensive than bypass surgery, *New Eng J Med* 311: 1157-1162 (1984).
5. Waller BF, Rothbaum DA, Gorfinkel HJ, et al: Morphologic observations after percutaneous transluminal balloon angioplasty of early and late aortocoronary saphenous vein bypass grafts, *J Am College of Cardio* 4: 784-792 (1984).
6. Cowley MJ, Dorros G, Kelsey SF, Raden MV, Detre KM: Acute coronary events associated with percutaneous transluminal coronary angioplasty, *Am J Cardio* 53: 12C-16C (1984).
7. Dorros G, Cowley MJ, Janke L, Kelsey SF, Mullin SM, Raden MV: In-hospital mortality rate in the National Heart Lung and Blood Institute Percutaneous Transluminal Coronary Angioplasty Registry, *Am J Cardio* 53: 17C-21C (1984).
8. Gruentzig, AR, Meier B: Current status of dilation catheters and guiding systems, *Am J Cardio* 53: 92C-93C (1984).
9. Anderson HV, Douglas JS, King SB, Gruentzig AR: Technical correlates of improved primary success of coronary angioplasty (PTCA), *Circ* 70: II-296, (1984).
10. McAuley BJ, Sheehan DJ, Simpson JB: Coronary angioplasty of stenosis at major bifurcations: Simultaneous use of multiple guidewires and dilation catheters, *Circ* 70: II-108, (1984).



# Hydrocarbon Ingestion in Children: Its Sequelae and Management

THOMAS D. TINKER, MD

**The ubiquity of hydrocarbon-containing household products and the fact that their ingestion may be associated with significant morbidity require that primary care physicians know how to manage hydrocarbon ingestion and its potential sequelae in those patients most frequently affected, children under five years of age.**

**A**ccidental poisoning in children is often encountered by primary care physicians. In children under five years of age, ingestions account for over 90% of poisonings, while topical, ocular, inhalent, and envenomation poisonings comprise the balance of toxic exposures.<sup>1</sup> Aspiration of the ingested substance may be associated with greater morbidity than ingestion of the toxin alone. A variety of aspiration syndromes occur in children and include the following: (1) aspiration of particulate matter (eg, food meconium), (2) aspiration of bacteria (eg, anaerobic streptococci, fusobacteria), and (3) aspiration of toxic fluids (eg, gastric acid, hydrocarbons).<sup>2</sup>

Hydrocarbon (HC) ingestion represents 20% to 25% of childhood poisonings under age five.<sup>3</sup> In one survey of pediatric patients hospitalized for poisoning, ingestion of HCs was the leading cause<sup>4</sup>; in another it was second.<sup>5</sup> Toddlers' (ages 1 to 3 years) normal developmental stages make them prime candidates for toxic substance ingestion. Their innate curiosity, high oral drive, and newly acquired ability

to walk frequently result in indiscriminate attempts to ingest whatever is appealing.

Three classes of HCs are involved in pediatric poisonings: (1) terpenes (eg, turpentine, pine oil products), (2) aromatic HCs (eg, benzene, toluene, xylene), and (3) aliphatic HCs (eg, gasoline, kerosene, solvent, and thinners, lighter fluid, furniture polish containing mineral seal oil).<sup>6</sup> Recent statistics reveal that liquid polish containing mineral seal oil is the most commonly ingested HC in children less than five years of age. It is followed by gasoline, solvents and thinners, kerosene, lighter fluid, and turpentine in decreasing order of frequency.<sup>7</sup> The highest incidence of HC ingestion reportedly occurs between May and September.<sup>8</sup> This peak, some speculate, occurs when young children are outdoors and mistake gasoline or kerosene for beverages when the liquids are placed in familiar containers (such as soda or juice bottles) near grills, lawn chairs, and other summer items.<sup>8,9</sup>

This paper reports a single case of HC ingestion and limits its discussion primarily to aliphatic hydrocarbons. A summary of the clinical findings and currently recommended approaches to management of HC ingestion in children are presented in a brief review of the literature.

## Case Report

The patient, a 21-month-old black male, was in good health until the day of admission, when he allegedly drank a large but unknown quantity of gasoline. He had no previous history of accidental ingestion. His

From the Department of Anesthesiology, Oklahoma Teaching Hospitals, Oklahoma City, Oklahoma.

Thomas D. Tinker, MD, 2940 Northwest 47th Street, Oklahoma City, Oklahoma 73112.

Table 1. — Sample Viscosities\*

Viscosity	Sample Products
Less than 60 SSU <sup>†</sup>	Mineral seal oil (furniture polish) Gasoline Turpentine Lighter fluid Kerosene VM & P naphthas Stoddard solvent Petroleum ether (benzene) Benzene, xylene, etc. Carbon tetrachloride, tetrachloroethane
Greater than 100 SSU	Lubricating oil Petroleum jelly Grease Fuel and diesel oil Rubber cement Tar and asphalt Moth balls Paraffin wax

\*From Geehr E.<sup>11</sup><sup>†</sup>SSU, Saybolt Seconds Universal. See text for explanation.

Reprinted with permission of Aspen Systems Corporation from Geehr E: Management of hydrocarbon ingestions, *Topics Emer Med*, 1979.

baby-sitter, in attendance at the time of ingestion, stated that he "inhaled some gas" but never vomited. He was transferred to the local emergency room where he was noted to have a gasoline odor on his breath and to be in moderate respiratory distress. A chest film revealed bilateral basilar infiltrates. The patient received a charcoal slurry before being transferred to Oklahoma Children's Memorial Hospital (OCMH), Oklahoma City.

In the OCMH emergency room the patient was lethargic and in moderate respiratory distress with nasal flaring and audible, grunting respirations. Vital signs were as follows: temperature, 37.3° C; pulse, 146 per minute; respirations, 48 per minute; systolic blood pressure, 110 mm Hg. Examination of the chest revealed suprasternal and intercostal retractions. Breath sounds were coarse on auscultation, and bilateral rales were present. Percussion revealed dullness posteriorly over both lower lobes. The remainder of findings were within normal limits, and no focal neurologic deficits or seizure activity were noted.

Initial arterial blood gases revealed a pH of 7.27, pCO<sub>2</sub> of 43 mm Hg and pO<sub>2</sub> of 51 mm Hg on room air. The patient was given six liters of oxygen per nasal prongs, and repeat gases were essentially unchanged except for the pO<sub>2</sub> which was 150 mm Hg.

Admitting laboratory values were as follows: (1) complete blood count, hemoglobin 12.2 gm/dl, hematocrit 37.4%; WBC  $17.5 \times 10^3$ /cu mm with 60% neutrophils, 7% bands, 28% lymphocytes, 4% reactive lymphocytes, 1% eosinophils; platelets 478,000; (2) sodium 140 mEq/L, potassium 3.7 mEq/L, chloride 113 mEq/L, CO<sub>2</sub> 19 mEq/L, glucose 245 mg/dl, BUN 11 mg/dl, creatinine 0.9 mg/dl; (3) urinalysis was remarkable for blood 3<sup>+</sup>, RBC 0-2/hpf, occasional WBC, 2-5 coarse granular casts/hpf, and rare RBC cast/hpf. A second chest x-ray revealed bilateral alveolar infiltrates in the lower lobes and in the right middle lobe consistent with HC aspiration. In the emergency room the patient was given magnesium citrate for catharsis.

The patient was admitted to the hospital in fair condition. Cardiac and apnea monitors were obtained for closer observation and supportive oxygen therapy, at four liters per minute by nasal prongs, was continued. Within 24 hours of admission the patient's temperature rose to 39.8° C (rectally), and blood cultures were drawn. Because the blood cultures remained negative, he was treated with acetaminophen only. Nasal flaring and intercostal retractions subsided within 24 hours, but the patient remained tachypneic for 48 hours, with respiratory rates as high as 60 per minute, the average being 44 per minute.

The patient's clinical status progressively improved after the first 48 hours. He subsequently was discharged on the fourth hospital day. He was afebrile, had no signs of respiratory distress, and was playful. The initial leukocytosis had resolved (WBC  $8.1 \times 10^3$ /cu mm) and all other chemistries and laboratory survey findings were within normal limits. The final chest x-ray revealed some resolution of the pulmonary infiltrates without evidence of pleural effusion. The parents were instructed on child-proofing the home, and poison control information was given.

## General Considerations

Crude petroleum oil is a complex mixture of aromatic and aliphatic hydrocarbons. Aromatic HCs contain a benzene ring whereas aliphatic HCs are primarily straight-chained compounds. The distillation of petroleum oil produces a large array of straight-chained derivatives. Gasoline, mineral seal oil, and motor oil are just a few examples.<sup>10</sup> None of these compounds is pure; each is a mixture and varies in its viscosity, surface tension, and volatility.<sup>11</sup> These three parameters determine an individual hydrocarbon's aspiration hazard and absorptive toxicity. Viscosity is a measurement of a substance's resistance to flow or change



in form and is measured in Saybolt Seconds Universal (SSU) units. Surface tension refers to cohesiveness of molecules on a liquid's surface, whereas volatility is the tendency of a liquid to become a gas. In general, fuels and solvents such as gasoline and kerosene have shorter molecular chains than do lubricants. The shorter molecular chain lowers the surface tension and viscosity and increases the volatility of fuels and solvents.<sup>11</sup>

A hydrocarbon's aspiration potential is best predicted by its viscosity.<sup>12</sup> Substances with viscosities below 60 SSU have a high aspiration potential, whereas those above 100 SSU pose a minimal risk (Table 1).<sup>11</sup> Viscosity is even a better indicator of an HC's aspiration hazard than is the volume of that HC when ingested.<sup>13</sup> For example, gasoline, lighter fluid, and mineral seal oil all have low viscosities (low SSU) and a high aspiration potential when ingested in any amount.

The clinical manifestations of any disease process vary with the host's state of health. In the pediatric population, where acute illness is so common, poisoning may be superimposed on a preexisting disease state. General features that suggest the possibility of a poisoning include the following: (1) abrupt onset; (2) pica prone age group (1 to 5 years of age); (3) past history of pica or known accidental ingestion; (4) substantial environmental stress, either acute (arrival of a new baby, recent move) or chronic (parental inadequacy, marital conflict); (5) multiple organ systems involved; (6) significant change in mental status; and (7) a clinical presentation that cannot be identified with a specific disease entity.<sup>1</sup> Personality traits that have been associated with the "typical" ingestor include hyperactivity, impulsiveness, and exaggerated oral behavior, eg, thumbsucking.<sup>14,15</sup>

## Manifestations of Hydrocarbon Poisoning

The manifestations of HC poisoning vary with time (Table 2).<sup>11,16</sup> Acute poisoning, within the first six to eight hours, is associated with respiratory and neurologic abnormalities, cardiac dysrhythmias, gastrointestinal upset, fever, and malaise. Although HCs can affect multiple organ systems, the pneumonitis that develops following aspiration is the greatest source of morbidity and mortality. The most common neurologic abnormality is lethargy; seizures, stupor, and coma are rare. Central nervous system (CNS) dysfunction is currently attributed to the hypoxemia that accompanies the aspiration pneumonitis and not to direct CNS toxicity.<sup>17</sup> Days to weeks later hepatic dysfunction, renal tubular aberrations, and

Table 2. — Manifestations of Hydrocarbon Poisoning\*

### Acute: up to 8 hours

Gastrointestinal — mucous membrane hyperemia and/or irritation, abdominal distress, nausea, vomiting  
Respiratory — cough, choking, inspiratory stridor, tachypnea, cyanosis.  
Cardiac — dysrhythmias, especially with aromatic HC  
CNS — lethargy, stupor, coma, seizures  
Systemic — fever, malaise

### Delayed: days to weeks

Gastrointestinal — diarrhea  
Hepatic toxicity  
Respiratory — bacterial pneumonia with increased dyspnea, cough and sputum production, pulmonary function abnormalities, pneumatoceles (asymptomatic)  
Renal — proteinuria, microscopic hematuria, renal tubular acidosis, acute tubular necrosis (rare)  
Hematologic — spontaneous hemorrhaging, rare hemolytic and late aplastic anemias (usually seen with benzene poisoning)

\*Modified from Geehr E.<sup>11</sup>

Reprinted with permission of Aspen Systems Corporation from Geehr E: Management of hydrocarbon ingestions, *Topics Emer Med*, 1979.

hemolysis may occur, though the latter is seen primarily after aromatic HC exposure.

## Clinical Presentation

Clinical findings are similar regardless of the HC ingested.<sup>18</sup> In most cases a burning sensation is noted in the mouth and throat. Gagging, choking, and grunting respirations, all presumptive evidence of aspiration, may follow. The child may experience dyspnea and transiently be cyanotic. Tachycardia and tachypnea occur with moderately severe pulmonary involvement. A persistent dry cough often indicates that the lungs have been severely assaulted. Fever may appear within 30 minutes, be delayed, or not appear at all.<sup>18</sup>

At the time of initial medical evaluation, the range of clinical findings varies greatly. The patient may appear asymptomatic or be lethargic with moderate to severe respiratory distress. A disparity between clinical and radiographic findings commonly exists. Auscultation of the chest may reveal rales, but often only decreased breath sounds are noted in the patient who, clinically, appears quite ill. Pulmonary involvement is disclosed more frequently by radio-



graphic examination than by physical findings and will be described later. Laboratory studies may reveal a leukocytosis, hypoxemia, elevation of serum liver enzyme levels, and renal tubular abnormalities.

### Radiographic Findings

As with the clinical appearance, there is no absolute correlation between radiographic findings and the patient's respiratory status. Radiographic examination more frequently uncovers pneumonic involvement than does physical examination. Some clinical series report that nearly 70% of patients have x-ray changes postingestion.<sup>8,19,20</sup> Roentgenographic abnormalities in the chest may be present within 30 minutes of aspiration, and almost all patients with lung involvement yield radiographic findings of chemical pneumonitis within 12 hours of ingestion.<sup>18</sup> Chest films initially disclose areas of fine, mottled perihilar densities extending into the midlung fields and lung bases. These may coalesce to form confluent densities associated with surrounding areas of compensatory emphysema.<sup>18</sup> Radiographic aberrations usually are bilateral, reaching a climax with 72 hours.<sup>18</sup> Though these abnormalities usually resolve within 15 days, some may linger up to 2 years.<sup>3</sup> It is not uncommon for roentgenographic resolution to lag behind clinical improvement.

### Pathophysiology

The pathophysiology of the disease that may follow HC ingestion is related to the physical and chemical properties of HCs mentioned earlier, principally the viscosity. "It is hypothesized that upon ingestion, the HC rapidly disperses over the pharyngeal and glottic surfaces due to low viscosity, with the more volatile components becoming gas upon contact with the warm mucous membranes, causing irritation, coughing and aspiration. The episode may be brief but long enough to allow a toxic amount to enter the tracheobronchial tree."<sup>11</sup> Transient cyanosis, often noted within minutes of aspiration, may be due to the displacement of alveolar gas by the vaporized HC.<sup>18</sup> In the alveoli, the HC probably causes its initial damage by chemical destruction of pulmonary surfactant.<sup>21</sup> The result is alveolar instability. Atelectasis and pulmonary edema may develop and lead to ventilation perfusion mismatching.<sup>3</sup> Vaporization of the volatile HC in the lungs may decrease alveolar oxygen partial pressure. When coupled with the ventilation-perfusion inequalities resulting from alveolar and small airway closure, marked hypoxemia may result in severe cases.<sup>22</sup> Therefore, the low viscosity of certain

HCs enhances their spread throughout the lung after aspiration. For this reason, HC aspiration typically produces a generalized chemical pneumonitis, whereas other forms of aspiration primarily involve the dependent portions of the lung.<sup>2</sup>

The fever and leukocytosis commonly noted at the time of admission are components of the body's inflammatory response to the foreign body.<sup>6</sup> During the first 48 to 72 hours following ingestion, they rarely are indicative of infection. Though the degree of fever bears no relation to the severity of the illness, one study reports that a "significantly higher" initial leukocytosis (mean WBC of 15,900 cu mm versus 12,100 cu mm) may be prognostic of those who will develop pneumonia.<sup>8</sup>

### Diagnosis and Treatment

The diagnosis of HC ingestion is usually obvious from the history and odor of petroleum distillate on the child's breath, clothing, or emesis. When the account of ingestion is inexact or uncertain, the substance ingested or its container should be obtained and its identity verified.<sup>23</sup> It is important to identify precisely the product ingested, both because of differing inherent toxicities based on the viscosities of the products and because the HC may serve as a solvent for a more toxic ingredient, such as an insecticide.

With any topical HC exposure, all contaminated clothing should be removed and contaminated skin thoroughly washed with soap and water to reduce cutaneous irritation and absorption.<sup>10</sup>

The literature suggests that lung damage after HC ingestion is directly related to aspiration and not to absorption in the gastrointestinal tract and subsequent excretion through the lungs.<sup>24,25</sup> As previously mentioned, the hypoxemia accompanying aspiration pneumonitis accounts for CNS manifestations, not direct CNS toxicity. For this reason, the most salient point in the management of HC pneumonitis, apart from supporting vital functions, is to prevent further aspiration.<sup>11,18</sup> Instilling small amounts of petroleum distillate in the lungs of laboratory animals has been reported to rapidly produce massive chemical pneumonia, often leading to respiratory failure and death.<sup>12</sup>

Because of the potential risk for aspiration with vomiting, emesis is contraindicated in the patient who is comatose, convulsing, has swallowed a petroleum distillate in a quantity of less than 1 ml/kg, or has ingested a corrosive or strychnine.<sup>11</sup> However, in the following special cases, the patient who has ingested an HC needs gastric emptying: (1) when the

patient has ingested an HC that contains an additional substance with known systemic toxicity (such as an insecticide, nitrobenzene, camphor, halogenated or aromatic HCs, and heavy metals like lead, mercury, and arsenicals) or (2) when the patient has swallowed a large volume of petroleum distillate (greater than 1 ml/kg in a preschool child).<sup>10,11</sup> In a young child each swallow of any liquid equals 0.21 ml/kg or about 5 ml.<sup>6</sup> Because many studies reveal that most children do not swallow more than 30 ml (one ounce), *very few* preschool children will require gastric emptying after ingesting an aliphatic HC.<sup>5,6</sup>

According to two large clinical reviews, the vast majority of children are asymptomatic at the time of evaluation.<sup>4,26</sup> Because symptoms and lung infiltrates may be delayed, asymptomatic patients should be observed when aspiration is suspected. For the asymptomatic child with confirmed ingestion, an initial chest x-ray, hemogram, arterial blood gas, urinalysis, and liver function survey should be obtained.<sup>11</sup> Anas and associates, in their retrospective study, concluded that only children who are symptomatic (ie, with clinical and radiographic abnormalities) at the time of initial medical evaluation or

**Viscosity is an  
even better indicator of  
an HC's aspiration hazard  
than is the volume  
ingested.**

who become symptomatic during a six- to eight-hour period of observation require hospitalization.<sup>26</sup> These and other authors recommend only supportive treatment for patients hospitalized after HC ingestion.<sup>8,10</sup> Supportive care includes oxygen, antipyretics, antibiotics if infection is confirmed, and careful monitoring by skilled nursing personnel. Respiratory symptoms are occasionally prolonged in children, but the usual hospital stay is 3 to 6 days despite what may be a stormy clinical course.

If gastric emptying is deemed essential, and the patient is conscious, not convulsing, and has a gag reflex, ipecac syrup remains the pharmacologic emetic of choice.<sup>27,28</sup> Ng has reported that ipecac-induced emesis, in alert patients in the upright position, does not increase the incidence of aspiration pneumonia.<sup>29</sup> Emesis should be followed by 15 to 30 grams of activated charcoal in a slurry and magnesium citrate (250 mg/kg) administered orally as a cathartic.<sup>11</sup>

Control of the nauseated patient in a supine, head-and-chest-down position should be maintained. Although the risk of aspiration may increase with uncontrolled, spontaneous vomiting,<sup>11</sup> antiemetics should not be used to prevent emesis. Antiemetics are CNS depressants and, therefore, may act synergistically with the pneumonitis to impair the patient's gag reflex.<sup>3</sup> For the comatose or stuporous patient with a suppressed gag reflex, place a cuffed endotracheal tube and perform gastric lavage with warm isotonic saline. It is important that removal of gastric contents by suction precede the actual lavage so that the risk of intralavage emesis is minimized.<sup>30</sup> During lavage, limited aliquots of approximately 50 to 75 ml should be used to avoid forcing fluid through the pylorus or around the lavage tube at the gastroesophageal junction.

All hypoxic patients should receive supplemental oxygen. Relief of respiratory obstruction, as commonly occurs in convulsing patients (treated with intravenous diazepam, 0.1 to 0.3 mg/kg<sup>11</sup>), and ventilatory assistance should be provided if necessary. For those patients who are severely affected, but breathing spontaneously, continuous positive airway pressure (CPAP) may be beneficial. It can augment oxygenation by preventing small airway closure and thereby improve ventilation-perfusion inequalities. Appropriate positive end-expiratory pressure (PEEP) will serve the same function in ventilated patients. Fluid administration should be reserved for the rare patient who develops shock because volume overload may rapidly lead to pulmonary congestion from endothelial cell wall damage.<sup>11</sup> If frequent premature ventricular beats and other dysrhythmias occur, cardiac monitoring should be instituted. Because HCs (especially aromatic HCs) may sensitize the myocardium, specifically its conducting system, to catecholamines, the use of epinephrine should be avoided.<sup>16,30</sup>

Neither animal models nor cooperative clinical trials have provided evidence to support the use of steroids in the treatment of HC pneumonitis.<sup>31,32</sup> To the contrary, they may diminish mononuclear cell infiltration and enhance secondary bacterial infection.<sup>33</sup> Fever usually subsides within 48 to 72 hours, so the routine use of prophylactic antibiotics is not recommended.<sup>32</sup> Persistence or rise of the white blood count and/or fever after 48 to 72 hours may be the harbinger of bacterial superinfection and warrants pulmonary cultures to rule it out. Until infection is confirmed, treatment with antipyretics is appropriate. Administration of either mineral or olive oil



to increase the hydrocarbon's viscosity, and thereby reduce the chance of aspiration if vomiting occurs, is discouraged; its use has been correlated with a higher incidence of pneumonia.<sup>8</sup>

## Complications

Complications that may occur in the course of treating patients with HC pneumonitis include pneumothorax, pneumomediastinum, subcutaneous emphysema, pleural effusion including empyema, secondary bacterial or viral infection, sepsis, and respiratory distress syndrome.<sup>13</sup> After the first week, pneumatoceles may develop in areas of extensive consolidation. These, however, rarely rupture and do not require treatment.<sup>34</sup>

## Mortality

The overall mortality secondary to HC poisoning is low, less than 1% in most series.<sup>11</sup> The respiratory system is affected most adversely in the vast majority of significant poisonings. Pulmonary edema, hemoptysis, and cyanosis may accompany severe injury. If death ensues, it usually does so within 24 hours of aspiration.<sup>18</sup> Direct aspiration of the HC into the tracheobronchial tree resulting in fulminant hemorrhagic pneumonitis, pulmonary edema, and inflammatory exudates in the alveolar ducts<sup>11,22</sup> is the primary cause of death in most patients. Other characteristic findings in the lungs of children dying of severe HC aspiration are similar to those noted in newborns with hyaline membrane disease.<sup>18</sup> These include necrotizing bronchitis, bronchiolitis, and alveolitis with associated vascular thrombi and ischemia.<sup>22</sup>

## Prognosis

A variety of factors influence the prognosis. These are the specific agent ingested (principally its viscosity), the volume of ingestion or aspiration, and the rapidity with which adequate medical care is obtained. One study, assessing the effects of HC pneumonitis on the developing lung, found one or more pulmonary function abnormalities in 82% of asymptomatic children at 8- to 14-year follow-up examinations.<sup>35</sup> These "physiologic scars" were attributed to small airway obstruction and/or loss of elastic recoil. It is conceivable, therefore, that children with a history of HC pneumonitis may be at increased risk for the development of chronic lung disease as adults, especially when they are exposed to exogenous factors such as air pollution and smoking.<sup>35</sup> This supposition is strengthened by the finding that

"childhood respiratory illness is an additive effect to smoking on the rate of decline of pulmonary function with age."<sup>36</sup>

## Conclusions

Ingestion of petroleum distillates is common among preschool children, with those between the ages of one and three years being at greatest risk. Prevention remains the most efficacious method of managing its potential sequelae. The ubiquity of HC-containing products in the home and the unfortunate fact that many of these products are pleasantly colored and scented make them attractive to curious young children. Furthermore, HCs often are carelessly stored in familiar beverage containers that may, in themselves, be enticing to toddlers. The positive impact that child-resistant container packaging has had since the passage of the Poison Prevention Packaging Act by Congress in 1970 has been tremendous. For example, aspirin ingestions have declined by 40% to 50%.<sup>1</sup> While both parental education and government regulation can contribute significantly to the prevention of pediatric toxicologic morbidity, the need for rapid diagnosis and accurate management of the poisoned child remains. □

## References

1. Henretig FM: Poisoning in children, in Hanson W (ed): *Toxic Emergencies*. New York, Churchill Livingstone, 1984, pp 14-19.
2. Brooks JG: Respiratory tract and mediastinum, in Kempe CH (ed): *Current Pediatric Diagnosis and Treatment*. Los Altos, Lange Medical Publications, 1982, p 291.
3. Goldfrank L, Kirstein R, Bresnitz E: Gasoline and other hydrocarbons. *Hosp Physician* 9:32-28, 79, 1979.
4. White LE, Driggers DA, Wardinsky TD: Poisoning in childhood and adolescence: A study of 111 cases admitted to a military hospital. *J Fam Pract* 11:27-31, 1980.
5. Deeths TM, Breeden JT: Poisoning in children — a statistical study of 1057 cases. *J Pediatr* 78:299-305, 1971.
6. Mack RB: Hydrocarbon ingestion. *N Carolina Med J* 42:338, 1981.
7. *Tabulations of 1979 Case Reports*. USO Department of Health and Human Services. Food and Drug Administration, Division of Poison Control. National Clearinghouse for Poison Control Centers Bulletin, Washington, DC, August, 1981.
8. Beamon RF, Siegel CJ, Landus G, et al: Hydrocarbon ingestion in children: A six-year retrospective study. *JACEP* 5:771-775, 1976.
9. Cachia EA, French FF: Kerosene poisoning in children. *Arch Dis Child* 39:502, 1964.
10. Moriarty RW: Petroleum distillate poisonings. *Drug Ther June*: 135-139, 1979.
11. Geehr E: Management of hydrocarbon ingestions. *Topics Emerg Med* 1:97-110, 1979.
12. Gerarde HW: Toxicological studies on hydrocarbons. *Arch Environ Health* 6:329-341, 1963.
13. Sullivan JB: The generally (inadvertently) swallowed poisons, in Hanson W (ed): *Toxic Emergencies*. New York, Churchill Livingstone, 1984, pp 226-229.
14. Turbeville DF, Fearnow RG: Is it possible to identify the child who is a "high risk" candidate for the accidental ingestion of a poison? *Clin Pediatr* 15:918-919, 1976.
15. Sibert JR, Newcombe RG: Accidental ingestion of poisons and child personality. *Postgrad Med J* 53:254-256, 1977.
16. Pomeroy GLM: Hydrocarbons, in Rosen P (ed): *Emergency Medicine: Concepts and Clinical Practice*. St. Louis, CV Mosby Company, 1983, pp 1587-1590.
17. Wolfsdorf J: Kerosene intoxication: An experimental approach to the etiology of the CNS manifestations in primates. *J Pediatr* 88:1037-1040, 1976.
18. Eade NR, Taussig LM, Marks MI: Hydrocarbon pneumonitis. *Pediatrics* 54:351-357, 1974.
19. Brunner S, Rousing H, Wulf H: Roentgenographic changes in the lungs of children with kerosene poisoning. *Am Rev Resp Dis* 89:250-254, 1964.
20. Bonte F, Reynolds J: Hydrocarbon pneumonitis. *Radiology* 71:387-391, 1958.
21. Giammona ST: Effects of furniture polish on pulmonary surfactant. *Amer J Dis Child* 113:658-663, 1967.
22. Karlson KH: Hydrocarbon poisoning in children. *So Med J* 75:839-840, 1982.
23. Driggers DA: Pediatric poisoning — the first 30 minutes. *Postgrad Med* 72:52-59, 1982.
24. Wolfsdorf J, Kundig H: Kerosene poisoning in primates. *S Afr Med J* 46:619-621, 1972.
25. Bretton L, Haddow JE: Ingestion of charcoal lighter fluid. *J Pediatr* 87:633-636, 1975.



26. Anas N, Namasonthi V, Ginsburg CM: Criteria for hospitalizing children who have ingested products containing hydrocarbons. *JAMA* 246:840-843, 1981.
27. Ng RC, Darwish H, Stewart DA: Emergency treatment of petroleum distillate and turpentine ingestion. *Can Med Assoc J* 3:537-538, 1974.
28. Easom JM, Lovejoy FH: Efficacy and safety of gastrointestinal decontamination in the treatment of oral poisoning. *Pediatr Clin North Am* 26:827-836, 1979.
29. Ng RCW: Using syrup of ipecac for ingestion of petroleum distillates. *Pediatr Ann* 6:708-710, 1977.
30. Grosselin RE, Smith RP, Hodge HC: Kerosene, in Tracy TM (ed): *Clinical Toxicology of Commercial Products*. Baltimore, Williams and Wilkins, 1984, pp111-220-111-226.
31. Marks MI, Chicoine I, Legare G, et al: Adrenocorticosteroid treatment of hydrocarbon pneumonia in children — a cooperative study. *J Pediatr* 81:366-369, 1972.
32. Steele RW, Conklin RH, Mark HM: Corticosteroids and antibiotics for the treatment of fulminant hydrocarbon aspiration. *JAMA* 219:1434-1437, 1972.
33. Brown J, Bruke B, Dajani AS: Experimental kerosene pneumonia — evaluation of some therapeutic regimens. *J Pediatr* 84:396-401, 1974.
34. Bergeson PS, Hales SW, Lustgarten MD, et al: Pneumatocoles following hydrocarbon ingestion. *Am J Dis Child* 129:49-54, 1975.
35. Gurwitz D, Kattan M, Levison H, et al: Pulmonary function abnormalities in asymptomatic children after hydrocarbon pneumonitis. *Pediatrics* 62:789-794, 1978.
36. Burrows B, Knudson RJ, Lebowitz MD: The relationship of childhood respiratory illness to adult obstructive airway disease. *Am Rev Resp Dis* 115:751-760, 1977.

*Thomas D. Tinker, MD, is currently a second-year resident in anesthesiology in Oklahoma City. He earned his medical degree in 1984 at the University of Oklahoma College of Medicine and is a member of the Alpha Omega Alpha Honor Society, American Society of Anesthesiology, and International Anesthesia Research Society.*

## Coming in March . . .

Among the manuscripts being reviewed for publication in March are a study on runners and nutrition, an analysis of matched studies, a case report on the use of real time ultrasound in a child with spinal dysraphism, and the first of a three-part series of stories on the non-invasive vascular laboratory.

# **Third World Medicine — Adventure in a Work of Mercy**

**Story and photographs by  
RONALD M. MAHAFFEY, MD**

**How can I best serve my fellow man? It's a question every physician at one time or another has to answer. One of the most satisfying, exciting, and rewarding ways is serving in a developing country . . .**



This patient contracted tetanus from a 1" cut on the left knee. The patient survived.



Doctors arriving for morning rounds find the beds of those who've died being "sterilized" by the sun after being washed with an antiseptic solution.

This young Nigerian has rabies, the result of a dog bite on the arm two months earlier.



The time is 9 PM and I am still feeling the effects of the two-day plane trip. A night watchman from the hospital arrives on a small Honda motorcycle (there are no phones). A Nigerian doctor who has just finished his internship has admitted a four-month-old baby who arrived via taxi from the large city eleven miles away. The baby presented with a left upper quadrant mass, vomiting, and currant jelly stools. Within 30 minutes we are in the theater (operating room) reducing an intussusception. The terminal ileum is necrotic, and resection with primary anastomosis is accomplished as quickly as possible since the baby is only under ketamine anesthesia, and insects are now beginning to buzz around the lights. In this primitive medical

setting, x-ray is not available but, I muse, would not have helped in this case anyway.

This was my first evening at the Nigerian Christian Hospital, a 92-bed missionary hospital of the Church of Christ in Nigeria, West Africa. The resident expatriate doctor is home on leave and the Nigerian doctor who has just completed his internship will share call with me every other night. A third Nigerian doctor will complete his vacation while I am there.

Early the next morning, a soon-to-be-familiar motorcycle is again at the front door. A nearby maternity home, run by midwives, has transferred a lady who has been in labor for three days. The systolic blood pressure is 90 mmHg and no fetal heart tones are detectable. Feeling fortunate to have finished my cold-water bath, I rush up to the hospital to examine the patient with the Nigerian doctor. The diagnosis

From the University of Oklahoma Family Medicine Center, Tulsa.  
R. Mahaffey, MD, University of Oklahoma Family Medicine Center, 9912 East 21st Street, Tulsa, Oklahoma 74129.





Above:  
Physicians make their morning rounds in the women's ward at Nigerian Christian Hospital.



Right:  
This elderly woman was admitted with large bilateral inguinal hernias.

Below:  
Evident in a patient transferred from a maternity home is Bandl's contraction ring, signifying impending rupture.

Below right:  
Dr Mike Henderson, a visiting family practitioner from Childress, Tex, completes a cesarean section as his four children and a Nigerian aide watch.



is not clear cut. The abdomen is soft. The BP rises to 120 after less than 500 cc of fluid. While pitocin is being hung, the BP again drops to 90, and suspecting ruptured uterus, we take her to the OR. Under ketamine, again we find a large posterior uterine tear that the Nigerian doctor describes as "like a grenade went off in there." We extract the

dead fetus, now floating free in the abdomen, and I show my colleague how to do a supracervical hysterectomy. Fortunately the woman's husband matches her blood type and is willing to give the only pint of blood she will receive. The hematocrit is 20% on the first postoperative day.

As each day of our 28-day stay passed, I was

A nurse carries an ice chest full of measles vaccine down a jungle road. The vaccine was supplied by the Community Health Outreach Program.



thankful for my broad-based training in family practice. We treated obstructed labor, prematurity, incarcerated hernias, dehydration, diabetes, hypertension, congestive heart failure, protein calorie malnourishment, "internal heat" (akin to anxiety), and a whole host of infectious diseases such as malaria, hookworm, filariasis, tuberculosis, measles, tetanus, empyema, liver abscesses (one produced 3000 cc of pus over a two-week period), and even one case of rabies that we sent home from the clinic to die. Although there were very few specialists, most of whom were at a university hospital 200 miles from us, and the laboratory was minimal — microscope, centrifuge, incubator, spectrophotometer for which most of the chemistry kits were out of stock, no electrolytes — a good family practitioner could save a lot of lives and relieve a lot of suffering.

Meeting with the minister of health of Imo state (the state the hospital is in) and seeing the community health outreach program restarted — a program to give immunizations and health teaching in villages — were other highlights of my visit. A registered nurse, Erin Trippy, who accompanied me, was very instrumental in the latter project, a project very needed in this country where the government statistics in 1981 said mortality was 50% for children under five years of age.

What did I learn? I learned to be thankful — for my training, the blessings of the United States of America, such as clean water, nice roads, comfortable homes, abundant food, healthy children, and modern technology — I don't even mind taxes so much now. I also learned the meaning of a sign that hung in each of the four hospital wards that said, "We dress the wound, God heals it," because although the four-month-old with intussusception did well, and the patient with the ruptured uterus went home anemic but alive, many others died.

Of all the things I have done as a family physician, working at the Nigerian Christian Hospital has been the most satisfying and rewarding. If you are looking for a way to serve your fellow human beings in any area of medicine, consider using your talents in a developing country — it is an adventure of a lifetime. □

*Robert M. Mahaffey, MD, is a clinical assistant professor in the Family Medicine Center, University of Oklahoma Tulsa Medical College. He earned his medical degree in 1977 at the University of Texas Southwestern Medical School in Dallas. He is a Diplomate and Fellow of the American Academy of Family Physicians as well as a member of the American Occupational Medical Association and American College of Emergency Physicians.*





## News from the Oklahoma State Department of Health

### Fetal Alcohol Syndrome

Fetal Alcohol Syndrome (FAS) is the leading cause of preventable mental retardation in the United States today. In 1982, the National Institute on Alcohol Abuse and Alcoholism (NIAAA) estimated that 1 in 750 live births is affected by FAS.

NIAAA further noted that six times that many babies are born with the less severe array of signs and symptoms known as Fetal Alcohol Effects (FAE). This translates to 1 in 125 live births that show some evidence of alcohol-related birth defects. Those birth defects can range from a full-blown set of problems that include low birth weight, mental retardation, and facial abnormalities, to subtler defects that are sometimes not apparent until the child is older.

These health hazards are associated with alcohol consumption during pregnancy:

1. The risk for spontaneous abortion (miscarriage) is increased approximately twofold in pregnancies complicated by maternal drinking levels as low as one ounce of absolute alcohol twice a week.

2. Significantly decreased birthweight has been observed among the children of some mothers who average only one ounce of absolute alcohol (two standard drinks) per day during pregnancy.

3. Diminished prenatal growth is dose-related and may be more severe when alcohol is consumed in the third trimester.

4. Microcephaly, an important component in the diagnosis of FAS, indicates an overall decrease in brain growth.

5. During the peak reproductive age range of 18 to 34 years, an estimated 5% of American women consume an average of two or more drinks per day, or 14 or more drinks per week.

Public education efforts can help prevent the effects of FAS and FAE. These include materials available to your patients the hotline number handled by the Oklahoma State Department of Mental Health (1-800-522-9054).

When taking an ob/gyn history, include the following questions:

- Has anybody in your family had a drinking problem?
- How much wine, beer, or mixed drinks do you drink?

In the context of personal habits, the patients are not offended by the second question. This approach is suggested rather than asking, "You don't drink, do you?"

A videotape of Oklahoma Memorial Hospital grand rounds is available through the Oklahoma State Department of Health by calling (405) 271-5724. The tape features Robert J. Sokol, MD, Department of Obstetrics and Gynecology, Wayne State University, speaking on "Alcohol Related Birth Defects."

The Oklahoma State Department of Health and the Department of Mental Health are seeking physicians who are interested in FAS and would make themselves available to act as referrals for maternity patients with questions about the effects of alcohol.

If you are willing to act as a referral or want educational information, please call the Oklahoma State Department of Health at (405) 271-4476, or the Department of Mental Health at (405) 521-0044. The OSDH can provide a table of abnormalities found in FAS and a physicians' reference chart on symptoms which may indicate problem drinking in women.

DISEASE	November 1985	TOTAL TO DATE		
		This Year	Last Year	5 Yr. Avg.
AMEBIASIS	2	14	7	19
CAMPYLOBACTER INFECTIONS	23	286	186	—
ENCEPHALITIS, INFECTIOUS	0	26	20	27
GIARDIA INFECTIONS	19	304	313	—
GONORRHEA (Use ODH Form 228)	976	12068	12052	13728
HAEMOPHILUS INFLUENZAE				
INVASIVE DISEASE	20	225	182	—
HEPATITIS A	20	425	439	509
HEPATITIS B	15	204	170	242
HEPATITIS, NON-A NON-B	3	64	49	—
HEPATITIS UNSPECIFIED	6	78	94	189
MEASLES (RUBEOLA)	0	1	8	164
MENINGITIS, ASEPTIC	10	140	113	168
MENINGITIS, BACTERIAL				
(non-meningococcal, non H. Influenzae)	7	66	41	50
MENINGOCOCCAL INFECTIONS	1	27	27	31
PERTUSSIS	3	182	243	121
RABIES (Animal)	6	103	97	167
ROCKY MOUNTAIN				
SPOTTED FEVER	0	89	115	118
RUBELLA	0	1	0	1
SALMONELLA INFECTIONS	34	423	357	424
SHIGELLA INFECTIONS	7	254	197	308
SYPHILIS (Use ODH Form 228)	13	192	182	171
TETANUS	0	1	2	1
TUBERCULOSIS	18	228	198	278
TULAREMIA	1	17	20	28
TYPHOID FEVER	0	2	4	4

Diseases of Low Frequency	Total to Date This Year
ACQUIRED IMMUNE DEFICIENCY SYNDROME	14
BRUCELLOSIS	4
LEGIONNAIRES DISEASE	17
MALARIA	7
REYE SYNDROME	2
TOXIC SHOCK SYNDROME	14
RABIES	
CUSTER	Skunk 1
MAYES	Skunk 1
OKLAHOMA	Skunk 1
ROGERS	Dog 1
STEPHENS	Skunk 1
TULSA	Skunk 1



## HARD WORK & SMALL MIRACLES



Dear Mr. Jo

Jim Simeon Martin.

After surgery for a brain tumor, I was paralyzed on my right side. After the hospital, my doctor recommended the Rehabilitation Institute of Oklahoma.

Now, I work my cattle just as I always had, and I walk without so much as a cane. The Institute can help you rebuild your life. I'm living testament to that.

Sincerely,

Jim Simeon Martin

**A**fter injury or illness strike and the hospital stay is over, the recovery process may not be complete. For many, the next step on the road to a more self-sufficient lifestyle is the Rehabilitation Institute of Oklahoma.

We work hard with every patient to achieve the small miracles of recovery.

Call or write today for complete information.



Rehabilitation  
Institute  
of Oklahoma

700 Northwest 7th Street  
Oklahoma City, OK 73102  
405-236-3131

# When you need Professional help...



*call a specialist.*

**RTS** is the professional placement specialist. With 15 years of medical experience, we have the expertise to know your employment requirements and match them with qualified medical applicants.

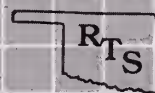
Pre-interviewing and screening saves costly expenditures of time, advertising and recruiting costs. By utilizing our professional resource pool, you receive prompt attention to your special needs.

RTS has the most innovative concept in permanent and temporary medical help available today, covering all areas of the medical field, including:

- PHYSICIANS • PHYSICIAN ASSISTANTS • RN/LPN • LAB TECHS
- X-RAY/EKG TECHS • EMT's • ER COVERAGE

*Call a professional...*

OKC 405/794-9642 • TULSA 918/582-2132



**PLACEMENT SERVICE, INC.**  
HOME OF RELIEF TECH SERVICE

SERVING OKLAHOMA PHYSICIANS, CLINICS AND HOSPITALS STATEWIDE • LICENSED BY THE STATE OF OKLAHOMA



*Autopsy results published***Baby Fae's doctor believed baboon heart would work**

"It was a near-perfect transplant for the first time out, and I really believed that she would celebrate many birthdays with her new heart," says Leonard L. Bailey, MD, the surgeon who transplanted a walnut-sized baboon heart to replace the failing heart of the infant "Baby Fae" one year ago.

In an exclusive interview with Dennis L. Breo, special assignments editor of the AMA's *American Medical News*, Bailey gave an assessment of the year following the famous xenograft and expressed optimism regarding the future of the technique. "To our colleagues and, especially, to the news media, we are making a plea for patience and understanding. We are asking them to throw off dogma and dated thinking and to go with us on this idea a bit to see where it leads. If I see something that convinces me xenografts will not work, I will set the project aside. But this is not what I am seeing. I am very positive about the potential of xenografts to help infants with hypoplastic left heart syndrome."

Bailey's comments came on the occasion of publication of the autopsy results in the *Journal of the American Medical Association*. The Loma Linda University researcher adds, "A permanent xenograft is

the practical thing to do to treat these infants, but I am willing to consider the use of the xenograft as a potential bridge to a human-heart transplant. To make the bridge work, though, we'll have to get the infant out to three to six months with the xenograft. My hunch is that if the xenograft lasts six months, there will be no need to replace it. It would be silly to remove a graft that is functioning normally," he says.

Failure of the Baby Fae graft probably was related to a number of factors, including a crossmatch of blood, the development of species-specific antibodies, and difficulties relating to cyclosporine dosage. Baby Fae had type O blood, extremely rare among baboons. In a recent screening test, type O blood was found in only three of 1,307 baboons. The researchers proceeded since scientific literature showed cases of human transplants that successfully crossed the ABO blood barrier.

"I believe that by selecting the baboon with the least antigens toward the patient we can significantly increase our chances of doing a successful xenograft," Bailey concludes. □



**US Rep Glenn English** (D-OK), right, meets with part of the Oklahoma delegation at the December AMA Interim Meeting in Washington, DC. From the OSMA are (l to r) John B. "Travelin' Jack" Nettles, MD, Tulsa; James B. Pitts, MD, Oklahoma City; and OSMA President Elvin M. Amen, MD, Bartlesville.





**Jack Spears**, recently retired executive director of the Tulsa County Medical Society, shares a table with other Tulsans at the AMA's Interim Meeting in Washington, DC. Spears was officially recognized at this, the 55th national AMA meeting he has attended. Floyd F. Miller, MD, Tulsa, read the official statement of commendation. Seated with Spears are (l to r) William C. Stone, MD, TCMS president; Rollie E. Rhodes, Jr., MD; and Paul L. Patton, who succeeded Spears in January.

### *Ethics debate continues*

## **Scientific Affairs council traces xenograft's history**

Ethical concerns surrounding highly experimental cross-species organ transplants must be carefully examined, asserts Arthur L. Caplan, PhD, writing in the *Journal of the American Medical Association*.

Caplan, of the Hastings Center, Hastings-on-Hudson, NY, says the continuing severe shortage of organs available to adults and children suffering from renal, cardiac, or liver failure has prompted Dr Bailey [Leonard L. Bailey, MD, Loma Linda University School of Medicine] and other physicians to focus on animals as a possible source of organs. In view of the interest in xenografts at a number of medical centers, Caplan cautions researchers, potential subjects and their families, policymakers, and the general public to consider the complex moral issues involved.

Subjects or their surrogates must be informed regarding the highly experimental nature of all forms

### *Ophthalmology and pediatrics included*


## **"Diabetic Renal Disease" tops list of April CME courses**

The Continuing Medical Education department at the University of Oklahoma College of Medicine, Oklahoma City, has scheduled the following CME courses for April:

April 4-5, "Diabetic Renal Disease: Special Problems for Native Americans, Strategies for Care" — To be held in conjunction with the End Stage Renal Disease Network 10, this program is intended to increase the understanding of health care problems particular to the Native American diabetic patient with end stage renal disease. Transplant strategies, dietary factors, and new oral agents are included in the topics to be discussed.

April 12, "Clinical Problems in Ophthalmology" — This program for the practicing ophthalmologist will review the current management of clinical problems in ophthalmology, emphasizing the new developments.

April 18-20, "Current Problems in Pediatric Therapy XII" (Western Hills Lodge, Wagoner) — Current Problems in Pediatric Therapy is designed to update pediatricians and generalists in the application of current thought regarding changing concepts of treatment. The program is designed to meet the needs of the practicing pediatrician and generalist who deals with children.

For additional information contact Magdalen DeBault, Associate Director, CME, OU College of Medicine, PO Box 26901, Room 164E, LB, Oklahoma City, OK 73190, (405) 271-2350. 

of xenografting, says Caplan. "Researchers interested in pursuing human trials would also appear to be under a strict obligation to inform potential subjects or their surrogates that nothing is known as to the long-term viability of xenografts in human beings."

Another consideration is the ethics of killing animals in order to benefit the terminally ill. Caplan suggests it seems ethically defensible to allow research involving xenografting in human subjects when no reasonable alternative therapy exists. He adds that efforts to increase the supply of human donor organs must continue, since there are no other therapeutic options.

"The immediate nonavailability of such options, when combined with a moral point of view that ac-

## Get a Grip on Overdue Accounts.



**Your Problem:** Overdue accounts. If you don't collect them, you're left with one choice: write them off.

**Your Alternative:** Tulsa Adjustment Bureau, Inc. For over 20 years, we've been helping clients in Tulsa and the surrounding area get a firm hold on overdue accounts. Our trained staff of professionals know how to get results. Results that mean money to you. And, in the event we don't collect, you won't owe us a cent. Guaranteed.

Call or drop by our office and we'll begin collecting your delinquent accounts. Let Tulsa Adjustment Bureau, Inc. show you how to get a grip on your overdue accounts today.

1754 Utica Square, Suite 283 Tulsa, Oklahoma 74114 (918) 749-1481  
In Oklahoma dial, 1-800-722-2703

**T U L S A**  
**A D J U S T M E N T**  
**B U R E A U**

## **Xenografts** (continued)


cords greater value to an individual human life than an individual animal life . . . would appear to justify, at least for the time being, killing animals for the purposes of further research involving xenografts," he says.

Between 10,000 and 25,000 Americans could benefit from kidney transplants if enough donor kidneys were available, Caplan says. Another 300 infants and children await liver transplants, while thousands of children and adults are potential recipients. There are about 100 patients waiting for heart transplants, and as many as 12,000 adults might benefit if a sufficient supply were available. Caplan

adds that about 7,500 infants are born each year with life-threatening congenital heart disease.

In a related article, the American Medical Association Council on Scientific Affairs traces the history of xenografts, which were first attempted in the early 1900s. "Most of the studies in renal xenografts in man were carried out in the early 1960s by Reemtsma and associates at Tulane University and by Starzl and associates at the University of Colorado," according to the report. One of the twelve (chimpanzee) xenografts performed by Reemtsma functioned for nine months, but most lasted only a few days.

Starzl and associates also performed three (chimpanzee) liver xenografts in young children. The first baboon (kidney) xenograft to man was performed in 1963. There have been only four baboon or chimpanzee heart xenografts; the first three recipients were adults who died within four days of surgery. The fourth case was Baby Fae.

"These studies demonstrated clearly that the transplanted organ was capable of function in the human recipient; however, the patient and graft survival in general has been poor," the report notes. 

**OSMA**  
**Physician Recovery Hotline**  
**(405) 691-7318**

INTERESTED  
IN FINE OFFICE FACILITIES  
IN A THRIVING COMMUNITY?

## **EDMOND MEDICAL PLAZA**

Across Street From Edmond Memorial Hospital

**First Class Medical Suites  
At An Affordable Rate**

WRITE: Edmond Medical Plaza Leasing Agent  
1601 Northwest Expressway, Suite 1010, Oklahoma City, Oklahoma 73118  
Or Call Clay T. Farha: 405-524-6336

EDMOND MEDICAL PLAZA  
120 North Bryant, Edmond, Oklahoma



## Adjuvant chemotherapy studied

# NIH issues guidelines for breast cancer treatment

Adjuvant chemotherapy has demonstrated a significant increase in disease-free survival as well as a significant reduction in mortality in premenopausal women with breast cancer, according to a National Institutes of Health (NIH) consensus conference report appearing in the *Journal of the American Medical Association*. However, the usefulness of adjuvant chemotherapy for postmenopausal women is less well established, the report adds.

The report represents a follow-up to a 1980 NIH conference on the use of chemotherapy following breast cancer surgery and irradiation. "Since the previous conference, a substantial number of new trials have been initiated, and follow-up in the older trials has continued," the report notes. "This has resulted in the accumulation of new information regarding the role of adjuvant therapy in the treatment of breast cancer."

The new NIH recommendations are: For premenopausal women with evidence of cancer spread to lymph nodes, regardless of hormone receptor status, treatment with established combination chemotherapy should become standard care; for premenopausal patients without lymph node involvement, adjuvant chemotherapy is not generally recommended (it should be considered only for certain high-risk patients in this group).

For postmenopausal women with positive nodes and positive hormone-receptor levels, the chemotherapeutic compound tamoxifen is the treatment of

choice; for postmenopausal women with positive nodes and negative hormone-receptor levels, chemotherapy cannot be recommended as standard practice, although it may be considered; and for postmenopausal women with no evidence of lymph node involvement, regardless of hormone receptor levels, there is no indication for routine adjuvant treatment.

"Many issues regarding the use of adjuvant cytotoxic and hormonal therapy of breast cancer remain unresolved," the report notes. "Some are best studied by prospective clinical trials; others require basic research in such disciplines as molecular biology, pathology, pharmacology, human genetics and cell biology."

Among issues requiring controlled clinical trials: Refinement of staging and prognostic subgroups; usefulness of adjuvant chemotherapy and/or endocrine therapy in patients with negative axillary lymph nodes; new combinations of drugs; optimal duration of tamoxifen administration; accurate assessment of the psychological, social, and economic effect of adjuvant therapy; and continued assessment of the late effects of adjuvant therapy.

Panel and conference chairman was John H. Glick, MD, of the University of Pennsylvania in Philadelphia. The panel was composed of representatives from the fields of medical oncology, surgery, radiation therapy, pathology, nursing, epidemiology, biostatistics, family medicine and the general public.



**Norman L. Dunitz, MD, Tulsa, OSMA president-elect, left, presents certificates of commendation to W. Carl Lindstrom, MD, and Wendell L. Smith, MD, of Tulsa, for their 50 years of service as practicing physicians. The presentations were made at the winter meeting of the Tulsa County Medical Society.**

# Always on call.



For over 20 years, C. L. Frates and Company has been recognized as "Insurance Counselors to the Oklahoma State Medical Association." Because of our long-term relationship with OSMA, we understand the priorities and time limitations of the medical profession.

We are deeply committed to meeting the special needs of doctors, staff and their families through eight OSMA-endorsed insurance plans. With OSMA owned and governed Physicians Liability Insurance Company, we offer professional liability and a comprehensive medical/hospitalization plan, PLICO HEALTH. Our other OSMA-endorsed insurance programs are disability income, business overhead expense, term life, accidental death/dismemberment, personal liability umbrella and hospital indemnity.

One of our experienced insurance specialists is available at any time, day or night, to discuss or provide a complete, no obligation, personal and business risk analysis. For more information about our OSMA-endorsed insurance plans, please give us a call.



P.O. Box 18839 • Oklahoma City, OK 73154 • 405/524-7811 • Toll Free 1-800-522-9219



*More needs to be done*

## Orphan Drug Act beginning to affect drugs' availability

What would happen if you needed a lifesaving medicine, but the drug wasn't available because there was no economic incentive for drug companies to produce it? Victims of rare diseases have faced this situation, but recent cooperative efforts by government, the pharmaceutical industry, and voluntary agencies have made it increasingly likely that these patients will be able to obtain the medicines that they need, according to Dr Edward Remmers, writing in the November/December issue of *ACSH News & Views*, a publication of the American Council on Science and Health (ACSH).

The cost of new drug development has increased greatly in recent decades, in part because new regulations designed to ensure that drugs are as safe and effective as possible have also increased the need for costly laboratory and clinical testing before the drug is put on the market, Dr Remmers notes. "As a consequence, drugs with low anticipated returns on investment often do not undergo development quickly. One of the costs of our increased concern over safety and efficacy has been an expansion of the list of 'orphan' drugs — those that simply offer no profit potential for manufacturers.

"However, the 1983 Orphan Drug Act and a 1985 amendment to it have helped to solve this problem. Efforts by the pharmaceutical companies, which sometimes offer orphan drugs free of charge as a public service to physicians, and by voluntary agencies representing victims of rare diseases, particularly the National Organization for Rare Disorders (NORD), have also played an important role. Nevertheless, more needs to be done.

"More time is needed for the Orphan Drug Act and its amendment to exert their impact," Dr Remmers says. "The failure to appropriate the \$4 million for pre-clinical research that were authorized by the act needs to be reconsidered. And there is a need to review some of the disincentives to orphan drug development that are not addressed by the current law."

Additional information about orphan drugs and rare diseases can be obtained from the National Organization for Rare Disorders, 1182 Broadway, Suite 402, New York, NY 10001, and the National Information Center for Orphan Drugs and Rare Diseases (800) 336-4797 [in Virginia (703) 522-2590]. □



**Claude B. Knight, MD**, Wewoka family practitioner, leaves the Wewoka Country Club after receiving a certificate of commendation for his 50 years as a practicing physician. OSMA President Elvin M. Amen traveled to Wewoka in December to make the presentation (inset).

### OFFICE SPACE AVAILABLE

Two NEW office spaces available in SHAWNEE, OKLAHOMA. PRIME LOCATION, HIGH EXPOSURE, HIGH VOLUME AREA. Ideal for AM-PM Clinic or Doctors' Offices. 2,000 sq. ft. each. Very modern and elegant offices. Call (405) 275-6903 for more information.

Also, need 2 family practitioners for Shawnee area. Guaranteed income.



*Vaccination helpful with Down's patients*

## Hepatitis B infection risk studied in New York schools

School personnel and students are at markedly increased risk for hepatitis B virus infection if they are in classrooms with carriers of the infection, according to a study conducted in New York City and reported in the *Journal of the American Medical Association*.

Evidence of infection among personnel (measured by annual seroconversion) was nearly 12 times the rate for people in the 20- to 59-year-old age group, calculated from city surveillance reports from 1979 to 1982, the years of the study, say Brenda Breuer, PhD, MPH, of the city's health department, and colleagues. Infection among school children was 20 times the estimated infection rate for 5- to 19-year-olds during the same period, they add.

The study was begun following implementation of the Congressional Education for All Handicapped Children Act, which called for the placement of formerly institutionalized children into public school classrooms with handicapped children who had never been institutionalized. Previous studies indicated that from 50% to 90% of institutionalized children contracted hepatitis B virus. The researchers designed a new study, with one group composed of students and staff contacts of known carriers and two control groups, to measure the risk of viral transmission.

"For both staff and pupils, the proportion of seropositive subjects in group A was 1.7 times higher than that for the comparison group," the researchers say. "Despite demographic differences in our study



**John B. Coury, Jr., MD,** AMA president-elect, will be a featured speaker at the OSMA's 80th Annual Meeting in Tulsa, May 7-10. The 1986 meeting will be held at the Tulsa Convention Center and Excelsior Hotel.

groups, the association between classroom contact with a carrier and seropositivity was confirmed using a logistic regression technique."

In a related study focusing on institutionalized patients with Down's syndrome, researchers from the Baylor College of Medicine in Houston demonstrated that such patients respond normally to hepatitis B vaccination.

"The immune functions of patients with Down's syndrome have been shown to be defective," note Catherine L. Troisi, PhD, and colleagues. Furthermore, such patients are much more likely to become persistently infected than are other institutionalized patients, they add.

Their study involved 62 patients who were given varying doses of hepatitis B vaccine over one year. Antibody levels were consistently higher in the group given the higher dose. "Each group responds well to the vaccine both in terms of seroconversion and, more importantly, anti-HBs levels," they say.

Commenting editorially on both studies, Saul Krugman, MD, of New York University School of Medicine, says, "Today the risk of hepatitis B in the classroom can be reduced to negligible levels. Education, immunization, and the cooperation of both public health and public education authorities will be required to achieve this objective."

Vaccination of Down's syndrome patients will help because infected patients are likely to become carriers, he says. Finally, he suggests that costs for vaccination of people at risk of infection should be borne by appropriate public health authorities, since public education for handicapped children is mandated by Public Law 94-142.

### FAMILY PRACTITIONERS AND GENERAL INTERNIST LOOKING FOR PRIVATE PRACTICE

There is a perfect opportunity in Shawnee, Ok., 30 miles east of Oklahoma City. We will guarantee first year income of \$60,000.00 Net.

Send all inquiries and CV to Dr. G. D. Williamson, 1533 N. Harrison, Shawnee, Ok. 74801 or call 405-275-6903.

**OFFICE SPACE AVAILABLE IN IDEAL LOCATION.  
EXCELLENT AREA FOR AM-PM CLINIC.**

## States bordering Mexico face pork tapeworm threat

A new public health threat seen in states that border Mexico has been reported in the *Journal of the American Medical Association*. The potentially fatal infection, caused by the larval tissue stage of the pork tapeworm, *Taenia solium*, ranks as a major health problem in many developing countries of Central and South America, Asia, and Africa.

Frank O. Richards, Jr., MD, of the Centers for Disease Control (CDC), Atlanta, and colleagues documented nearly 500 cases of cysticercosis in four Los Angeles hospitals from 1973 to 1983. They note that more than 90% of these patients were Hispanics, and the majority were Mexican, although 12 cases

occurred in native US citizens who had not traveled to countries where the disease is endemic. Most patients required hospitalization for less than a week. A dramatic increase in the numbers of cases occurred after 1977, appearing to reach a plateau of about 80 cases per year in 1981.

The researchers suggest that cysticercosis could have national health implications. Submissions to the CDC for serologic testing for the disease rose from 1,402 in 1978 to 2,284 in 1982, a 63% increase. Sixty-two percent of these specimens came from states that border Mexico.

"We conclude that cysticercosis/taeniasis has emerged as a health problem of some concern in the Los Angeles area," the researchers say. "The presence of a large immigrant population from *T-solium*-endemic areas, the availability of the CT scan, and heightened physician awareness have combined to make diagnosis of this rare disease more common."



### Study conducted in ERs

## Liquid crystal thermometers are effective, report states

Taking a patient's temperature with a liquid crystal thermometer (LCT) can be just as effective as using a traditional oral thermometer, according to a recent study.

The LCT is a disposable, flexible piece of plastic that can be applied with adhesive to the patient's forehead for continuous temperature monitoring. The study, conducted at the Arizona Health Sciences Center in Tucson and reported in *Annals of Emergency Medicine*, consisted of recording the temperatures of 102 emergency department patients. Their temperatures were first measured by the LCT, then immediately by oral thermometry. Temperatures were taken this way every 15 minutes for two hours, or until the patients were discharged.

The LCT successfully identified the following:

- 100% of all patients who were admitted to the emergency department with a fever
- 92% of the patients who developed a fever while in the emergency department
- 89% of the patients whose temperatures went down while in the emergency department

According to the authors of the study, many physicians rely only on a single temperature taken upon admission to the emergency department. Use of the LCT provides continuous and reliable temperature monitoring, eliminating the need to use an oral thermometer periodically to monitor a patient's temperature during evaluation.



## Will our changing economy keep your professional disability policy from working?

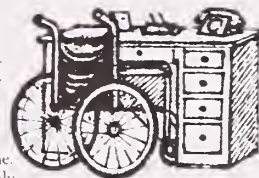
These days economic conditions are hard to predict. That's why a John Hancock disability policy does more than just provide a fixed level of coverage up to retirement.

It also provides a form of inflation protection so your coverage can keep pace with your income. This unique option lets you increase your monthly

benefits every two years up to age 63. With no need to prove medical insurability.

And if you pay all the premiums personally, your benefits are tax exempt.

Write today for complete information. And let us help you avoid the disabling effects of our economy.



Find out how John Hancock can keep your professional disability policy at work.

Jim Morris  
James M. Morris, II and Associates  
3613 N.W. 56th, Suite 320  
Oklahoma City, OK 73112  
405-946-9511

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

*John Hancock*  
companies

**We can help you here and now. Not just hereafter.**

John Hancock Mutual Life Insurance Company, Boston, MA 02117 and affiliated companies.



## DEATHS

### William C. Moore, MD 1910 - 1985

Wewoka general practitioner William C. Moore, MD, died October 24, 1985, at Wewoka General Hospital. Dr Moore was born in Water Valley, Miss, and earned his medical degree at the University of Tennessee Medical School in Memphis in 1944. He practiced in Tennessee, Kentucky, and Idaho before moving to Wewoka in 1955. Dr Moore was a veteran of World War II, having served as a first lieutenant in the US Army.

### Charles Frederick Obermann, MD 1902 - 1985

Oklahoma City psychiatrist Charles F. Obermann, MD, died December 30, 1985. Dr Obermann was born in Mediapolis, Iowa, and earned his medical degree at the State University of Iowa College of Medicine, Iowa City, in 1930. He practiced medicine in several Iowa cities before moving to Oklahoma City in 1947. Certified by the American Board of Psychiatry and Neurology, he served as medical director of the Oklahoma State Department of Mental Health and was an assistant professor of neuropsychiatry at the University of Oklahoma Medical School.

### Alexander Poston, MD 1938 - 1986

Oklahoma City cardiologist Alexander Poston, MD, died Friday, January 3, at Presbyterian Hospital. He was 47 years old. Born in Kingsport, Tenn, Dr Poston earned his medical degree at Bowman-Gray School of Medicine, Winston-Salem, NC, in 1962. He served in the US Air Force from 1963 to 1971, when he moved to Oklahoma City. Dr Poston was president of the board of directors of the Oklahoma City Clinic and a member of the board of trustees at Presbyterian. He was a Fellow of the American College of Medical Directors.

### Jesse Ray Waltrip, MD 1889 - 1985

OSMA Life Member Jesse R. Waltrip, MD, a resident of Shreveport, La, died in Shreveport on November 30, 1985. A general practitioner, Dr Waltrip was graduated from the University of Arkansas School of Medicine, Little Rock, in 1913. He was a veteran of World War II, attaining the rank of major, and practiced in Pauls Valley before his retirement and move to Louisiana.

## In MEMORIAM

### 1985

<i>E.C. Lindley, MD</i>	<i>March 1</i>
<i>Charles W. Freeman, MD</i>	<i>March 5</i>
<i>Floyd L. Waters, MD</i>	<i>March 5</i>
<i>Forest R. Brown, MD</i>	<i>March 19</i>
<i>William M. Leebron, MD</i>	<i>March 22</i>
<i>Louis A. Martin, MD</i>	<i>March 22</i>
<i>Don D. Sullivan, MD</i>	<i>March 27</i>
<i>Hanna B. Karam, MD</i>	<i>March 28</i>
<i>John R. Cotteral, MD</i>	<i>April 30</i>
<i>Ernest S. Kerekes, MD</i>	<i>June 8</i>
<i>L. Chester McHenry, MD</i>	<i>June 8</i>
<i>Seigul J. Polk, MD</i>	<i>June 10</i>
<i>Murray M. Cash, MD</i>	<i>June 11</i>
<i>Franklin Jesse Nelson, MD</i>	<i>June 13</i>
<i>Robert L. Kendall, MD</i>	<i>June 21</i>

<i>Marion K. Ledbetter, MD</i>	<i>July 3</i>
<i>James Floyd Moorman, MD</i>	<i>August 8</i>
<i>Oscar R. White, MD</i>	<i>August 14</i>
<i>Maurice P. Capehart, MD</i>	<i>August 29</i>
<i>Meredith M. Appleton, MD</i>	<i>September 7</i>
<i>Robert A. Northrup, MD</i>	<i>September 8</i>
<i>Carl H. Bailey, MD</i>	<i>September 9</i>
<i>Hugh B. Spencer, MD</i>	<i>September 13</i>
<i>Bernice E. McCain, MD</i>	<i>September 14</i>
<i>Robert Ray Rupp, MD</i>	<i>October 2</i>
<i>William C. Moore, MD</i>	<i>October 24</i>
<i>Jesse Ray Waltrip, MD</i>	<i>November 30</i>
<i>Charles F. Obermann, MD</i>	<i>December 30</i>

### 1986

<i>Alexander Poston, MD</i>	<i>January 3</i>
-----------------------------	------------------

**Books, Manuscripts, and the History of Medicine.** Edited by Philip M. Teigen. New York: Science History Publications, 1982, pp 112, price \$14.95.

The six essays in this monograph were prepared for a symposium to commemorate the fiftieth anniversary of the Osler Library at McGill University. Sir William Osler was interested and active in libraries, bibliography, and the history of medicine, and successfully joined these. It is appropriate that leaders in these respective fields present problems in areas of mutual interest.

Lloyd G. Stevenson, in the Introduction, points out problems and definitions. Charles G. Roland provides an interesting account of Osler's activities in bibliographic fields, particularly in Britain. Richard J. Durling offers a scholarly essay entitled "Medical-Historical Research in Mediaeval and Renaissance Manuscripts." Estelle Brodman discusses many of the technical and other aspects of historical medical bibliography, and in an excellent essay Tanselle discusses all aspects of physical bibliography in the twentieth century. He speaks with assurance of the inevitability of the bibliographical and editorial study of scientific literature. In the final essay, "Medical Historians, Librarians and Bibliographers: Will They Ever Meet?" Eric J. Freeman answers that to date they have shown little evidence of benefiting from each other's skills and insights in a productive manner.

This small monograph is filled with topics of interest in the fields listed in the title.

*Harris D. Riley, Jr., MD  
Oklahoma City*

**Psychosocial Basis of Medical Practice: An Introduction to Human Behavior.** (Second Edition)

By Charles L. Bowden, MD, and Alvin G. Burstein, PhD. Baltimore: The Williams and Wilkins Company, 1979. Price not given.

Physicians have been aware through the centuries of the crucial influence of social, psychological, cultural, and economic factors on the doctor-patient relationship and on the treatment of patients. Courses in human behavior and in human development are essential parts of the teaching in basic sciences in American medical schools today. With the able assistance of three colleagues from the University of Texas

Health Science Center in San Antonio, Drs Bowden and Burstein have written a basic text which can be used for those courses. Their considerable success in this endeavor is evident from their having been induced to produce a second, updated edition.

The book is subdivided into two large parts. Part I concerns itself with the work with a variety of patients. Part II deals with the life cycle and human development. Part III, a kind of postscript, has only one chapter and deals with physicians' adaptation to their professional roles. Throughout the theoretical

**Great care  
has been taken  
to avoid sentimental  
or excessively  
psychological measures...**

discussions there are many case examples and much clinical material.

Part I offers an excellent and extensive discussion of the diagnostic process, of socioeconomic and cultural factors, and of interviewing skills. Concise, but rich chapters follow on angry, affectionate, rigid, denying, obsessive, depressed, and hypochondriacal patients — as well as on patients who have pain or who are dying. Throughout these chapters, the discussion is sober, pragmatic, and practical, with many suggestions as to how to help and deal with such patients. Great care has been taken to avoid sentimental or excessively psychological measures that might turn off the more skeptical, "scientifically minded" students.

What is missing here, and which should be included in the third edition, is any reference to systems theory and to the ways in which overall systems of health care delivery may help, hinder, or change the doctor-patient relationship and the care that can be offered. For example, the patient is described (p 7) as assuming the "sick role" when he considers himself ill. The truth is, however, that people very rarely are able to consult physicians in any specialty unless they first accept and surrender themselves to the requirement of assuming "patient" status. This is



## Book Shop (continued)

not a trivial point; as it is, this very requirement makes it hard for many contemporary people who want to pursue *wellness* to fit anywhere into the existing health care system. Future physicians, particularly in this day and age, must understand the profound influence governmental or insurance industry policies and measures may have on the services that can and cannot be offered to the people who will seek their help.

The chapters on human development in Part II are generally of very high standard and contain many excellent observations and thought-provoking points. At all times the observations are tied to practical implications and to suggestions for management. Unfortunately, the development of many new forms of family living, even since 1979, raising many problems in offering adequate professional medical help, have not yet found their way into the second edition and will have to be dealt with in the next edition. The discussion on marital problems focuses on the failure of the marital partners to meet each other's needs. The need for maintenance and improvement of communication between the marital partners, at least as crucial, if not more important in this age of television, is not mentioned explicitly; it is only implied. Anyone who has dabbled in marital counseling will have realized that the meeting of mutual needs cannot occur until mutual communication between

the marital partners has been restored or brought about for the first time.

Overall, this text provides a useful basis for a course in human behavior and human development. Some graduate physicians may also find the observations and suggestions in the text stimulating and useful, particularly if this book soon is updated in a third edition.

*Poul W. Toussieng, MD*  
*Oklahoma City*

**The Matador Land and Cattle Company.** By W.M. Pearce, Norman: University of Oklahoma Press, 1964, pp 244, price not given.

Our concept of the origins and development of the cattle industry in the United States, even for those of us who have lived for a significant time in the Southwest, are largely framed by the cinema. This leads to the inescapable perspective that views cattle raising during the latter part of the nineteenth and early part of the twentieth centuries as an adventure rather than as a business. Consequently, books like William Pearce's *The Matador Land and Cattle Company* pose certain surprises while doing violence to some of our most cherished preconceptions.

The Matador is a case in point. Established and managed by a relatively shrewd group of businessmen in Dundee, Scotland, in 1882, the Matador

**PLAN NOW!**

## **1986 OSMA ANNUAL MEETING**

**Tulsa — May 7-10**

**Excelsior Hotel and Tulsa Convention Center**

grew into a monolithic enterprise which at its peak controlled holdings of over 1,500,000 acres. Remarkable in that growth is the fact that, despite the enormous distances involved and the need for timely decision making, the board at Dundee retained an extraordinary degree of control over company policies.

Perhaps the most fascinating aspect of the book, particularly to one whose principal exposure to this era is through John Ford westerns, is the gradual realization that the primary factors in the development of the company were not natural hazards and conflicts with marauding Indians, bands of outlaws, etc, but rather the influence of the early tax laws and regulations controlling commerce. It becomes apparent that the Matador was one of the most influential forces in the development and strengthening of the Interstate Commerce Commission and was as

## **The Matador... at its peak controlled holdings of over 1,500,000 acres.**

great an impetus to the break-up of major Chicago meat monopolies as were Teddy Roosevelt's trustbusters.

The central figure in the book, General Manager Murdo Mackenzie, was clearly the key to the Matador's success. Referred to at one time by Theodore Roosevelt as "the most influential of cattlemen," his story adds a new dimension to the profile of the American West. He was a shrewd businessman and a pioneer whose vision of the ultimate development of this industry did much to assure that the United States would assume and maintain a position of worldwide leadership in the cattle industry.

Although the book occasionally bogs down in a sea of details which could more effectively have been retained in the form of an extended appendix, this specialized history of an important economic foray bears reading and rereading. The illustrations are appropriate and the author's ability to sift through a plethora of detail in order to provide a balanced picture of the company might only be described as Germanic.

*Lynn H. Harrison, Jr., MD  
Oklahoma City*

**As in a Vision: Masterworks of American Indian Art.** By Edwin L. Wade, Carol Haralson, and Rennard Strickland. Norman: University of Oklahoma Press, 1983. Pp 144, illus, price not given.

In the fall of 1983, Tulsa's Philbrook Art Center placed on exhibit the Elizabeth Cole Butler Collection of Native American Art. In presenting that collection, this book becomes an effective extension of Mrs Butler's wish to convey an understanding of traditional Indian art and the people who created it.

The collection is unique in scope and purpose. It includes pieces from the Zuni and Cherokee, Eskimo and Seminole, Nez Perce and Iroquois; categories as diverse as clothing, cradles, masks, and musical instruments are discussed in successive chapters. The chapter titles themselves — "Take Me, I Am Powerful," "Medicine Bowl, Cloud Bowl," "May the Warp Be the White Light of Morning" — are taken from numerous Indian songs appearing throughout the book and underline the omnipresent spiritual aspect of Indian life.

The objects preserved in this collection were the tools, ornaments, containers, and clothing routinely made and used, traded or discarded in the daily lives of their owners. The "art" in them is incidental, a reflection of the culture that created them.

Beautifully produced, the book's lavish color and black-and-white photography, heavy coated stock, and 9"×11" format make it almost a "coffee table" book despite its soft cover. The text, however, is not coffee table fluff. It deserves, even requires, thoughtful reading and rereading. The introductory chapter alone, "To Live in a Time of Magic," should make the book worthwhile for any admirer of Indian art.

Readers with a particular fondness for today's Navajo rugs, Zuni silverwork, or Indian paintings may be disappointed though. The Butler Collection excludes most contemporary Indian art primarily because it *is* art — "art for art's sake" — and nothing more. The holistic spirit celebrated in the Butler Collection is, for the most part, already history, consigned to museums rather than galleries.

Other disappointments are few. One wishes for detailed, close-up photographs of intricate beadwork and needlework, for example, and the black-and-white photographs are occasionally a letdown where color would obviously enhance the reader's enjoyment. Nevertheless, the book represents a commendable effort to interpret and preserve a truly American heritage.

*Susan Records Harrison  
Oklahoma City*



## MISCELLANEOUS ADVERTISEMENTS

Miscellaneous advertising is available at the rate of \$10 per month per vertical inch or any portion thereof (ie, 1-7 lines is \$10, 8-14 lines is \$20, etc). Rates are *not* prorated for fractions of an inch. One inch of space contains 7 lines of copy averaging 55 characters each. The first line of the ad will automatically be set in all capital letters and averages only 38 characters. Count every letter, space, and punctuation mark as a character.

Box numbers will be assigned upon request at no additional charge. When requesting a box number, the last line of the ad must read: Reply JOURNAL BOX 00, c/o OSMA. This will add 32 characters and must be included.

Ads can be set in all boldface type if requested, for an additional \$2 per month.

Typewritten copy is preferred. Otherwise, print very legibly in ink. Ads will not be accepted on the telephone. Be sure to indicate how many times the ad is to run, and for the JOURNAL's records, please include a name, address, and telephone number where you can be reached if necessary. Ads must be received by the first of the month preceding publication.

In writing your ad, remember that it will be read statewide; include complete address and/or telephone information. If discussing employment, be sure to specify whether you are seeking a position or trying to fill one.

Enclose payment with your ad and mail to: OSMA JOURNAL, 601 Northwest Expressway, Oklahoma City, OK 73118. OSMA members and state agencies will be invoiced upon request.

**TEXAS: FULL TIME ED POSITION AVAILABLE AT 244-bed hospital. Recreational area north of Dallas. Excellent compensation including malpractice insurance. Contact: Emergency Consultants, Inc., 2240 South Airport Road, Room 32, Traverse City, MI 49684; 1-800-253-1795 or in Michigan 1-800-632-3496.**

**WANTED — GYNECOLOGIST**, board certified or board qualified and/or 2 obstetrician-gynecologists board certified or board qualified to join established practice in mid-western city. Excellent opportunity and facilities. 360 bed hospital. Please send resume to PO Box 2397, Muskogee, OK 74402. tr

**FOR LEASE: 2800 W. HEFNER RD, OKLAHOMA CITY.** 1830 sq. ft. of medical office space in prime NW location, attractive brick free-standing building, has examining rooms, offices, kitchen, large reception area & X-ray room. Excellent exposure, good parking, high traffic. Attractive rate and lease terms. For details contact Irwin Green, 405/946-7100 office or 405/721-5190, J. R. Fulton & Company.

**AVAILABLE — Practice Opportunity**, equipment, and professional building. 159' frontage by 100' deep, on main street and highway. Building 2,050 square feet, brick over cement block. Clinic 1,200 square feet plus 850 square feet rented. Two hospitals within 15 miles, two nursing homes in community. Only fulltime physician in the community. Wide drawing area. Contact: T. P. Forrestal, DO, 711 Main Street, Comanche, OK 73529. 405/439-2318 or 405/439-6642.

**TEXAS — NORTH OF DALLAS — IMMEDIATE FULL-time and part-time positions in hospital-affiliated family practice clinic.** Offering attractive incentive for purchase of clinic as practice. Beautiful resort area has stable patient population with great growth potential. Contact: Emergency Consultants, Inc., 2240 South Airport Road, Room 32, Traverse City, MI 49684; or call 1-800-253-1795 or in Michigan 1-800-632-3496.

**PERIODIC OPENINGS THROUGHOUT THE STATE** for full time physicians to provide primary care and supervise health care staff. Should have well rounded clinical experience in family practice or internal medicine and be eligible for licensure in Okla. Salary negotiable. Send resumes to Jon Tillinghast MD, Medical Director, Dept. of Corrections, 3400 M. L. King Ave., OKC, OK 73111 EOE

**PHYSICIANS OF VARIOUS SPECIALTIES NEEDED** for temporary and permanent salaried positions throughout Oklahoma and adjoining states. ER and radiology physicians also needed. Janis Edwards, RN, National Health Service, 3300 N.W. 23rd, Oklahoma City, OK 73107, (405) 722-0921.

**ACREAGE IN TOWN.** 3316 N.W. 44TH, OKC. 2.29 ACRES, 2-stall stable, tack room, work shop, and studio in separate building. Five bedrooms, 2½ baths, formal living and dining. Possible owner finance. Jane Mullaly (405) 842-8841, Keesee & Co., Realtors.

### ARE YOU A NATURAL FOR AMWA MEMBERSHIP?



**YOU ARE** if you are a physician, a nurse, or a pharmacist who wants to submit a readable and publishable article to a professional journal.

**YOU ARE** if you are a professional writer, an editor, or a graphics designer in the health care field who wants to become even more creatively productive.

**YOU ARE** if you are a medical communicator who wants to know and use the best contemporary verbal/visual techniques for conveying information.

**YOU ARE** if you want to meet, on social and professional levels, the many kinds of people described who conduct and participate in relevant, stimulating workshops and seminars in all parts of the country.

**YOU ARE** if you fill out, clip, and mail this coupon. ↓

Executive Director, AMWA  
5272 River Road, Suite 410  
Bethesda, Maryland 20816

YES. I want to know more about AMWA

NAME \_\_\_\_\_

TITLE (or specialty) \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_







*YEARS OF  
CONFIDENCE*

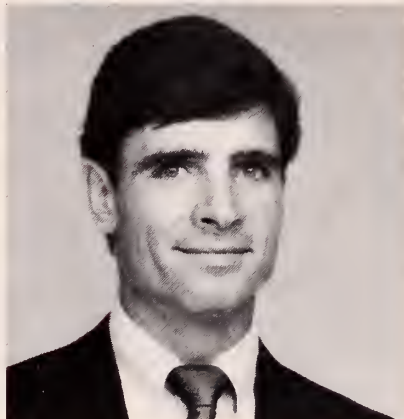
**Thank you for your loyal support**

**DYAZIDE®**

**25 mg Hydrochlorothiazide/50 mg Triamterene/SKF**

**SK&F CO.**

# Everybody deserves a chance to make it on their own.



## Everybody.



The National Urban League is dedicated to achieving equal opportunity for all. And you can help. Contact your local Urban League or write:



**National Urban League**

500 East 62nd Street  
New York, N.Y. 10021



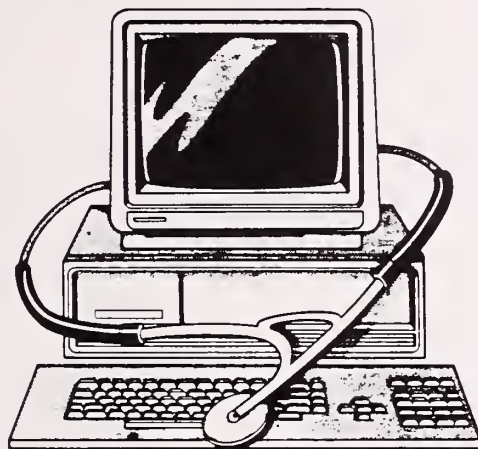
A Public Service of This Publication



# MANAGE YOUR OFFICE MORE EFFECTIVELY WITH THE MPM 1000 SYSTEM AVAILABLE THROUGH SOUTHERN MEDICAL ASSOCIATIONS PHYSICIANS' PURCHASING PROGRAM

Manage your office more effectively with the MPM 1000 System available through the Physicians' Purchasing Program.

Managing your office shouldn't be hard; however, with the current insurance requirements and



the impending Medicare changes looming on the horizon, it will get more difficult. You should call Curtis 1000 Information Systems or Southern Medical Association to find out how the MPM 1000 can help make your practice run more effectively.

## AVAILABLE ON IBM A/T

### MPM 1000 Simplifies Your Paperwork

You will be able to reduce the mountains of paperwork by using your MPM 1000 system to process all your insurance, complete your billing plus instantaneously sort and file necessary information.

### MPM 1000 Speeds Up Your Cash Flow

The MPM 1000 system will increase your daily bank deposits by processing all your insurance and patients' receivables quickly.

### MPM 1000 Improves Your Practice Management

With the MPM 1000 system you can easily and intelligently manage your practice with computer generated reports. Trends and problems are easily identified so you can take corrective action before they become serious.

### MPM 1000 Is A One Source Solution

The MPM 1000 is a one source solution. With your system you receive all hardware (IBM or Texas Instruments), software, complete five day training program and responsive after sale support.

### IBM PC/AT At Discount

Best of all, these systems are available through SMA Services, Inc., Physicians' Purchasing Program with substantial discounts on IBM and Texas Instrument equipment.

**FOR MORE INFORMATION**, please fill out the coupon below and mail it to Southern Medical Association, or for faster service call Southern Medical at (205) 945-1840 or Curtis 1000 Information Systems at 800-241-4780.

☐ **YES!** I would like more information on MPM 1000

My interests are: ☐ Immediate ☐ Long term ☐ Please contact me for a survey  
I am a member of SMA ☐

Name (Please Print)

Address

City

State

Zip

( )

Specialty

Office Phone

Mail to: CURTIS 1000 INFORMATION SYSTEMS  
2296 Henderson Mill Road  
Suite 402  
Atlanta, Georgia 30345



Willow View Hospital is the only private, non-profit hospital in Oklahoma dedicated solely to the treatment of psychiatric illnesses of all types, among all ages.

- 24 Hour Emergency Admissions
- 93 Inpatient Beds
- Outpatient Services
- Designated by the Department of Mental Health as an Examination and Detention Facility for Detention Patients
- Child/Adolescent Programs
- Adult Program
- Senior Adult Program
- Substance Abuse Program

Accredited by JCAH  
as a Child/Adolescent and  
Adult Psychiatric Hospital

Jay T. Shurley, M.D.  
Medical Director

#### MEDICAL STAFF

John C. Andrus, M.D.  
Janita M. Ardis, M.D.  
Nolen Armstrong, M.D.  
Hugh M. Conner, Jr., M.D.  
James A. Cox, M.D.  
A. A. Hellams, M.D.  
Wolfgang K. Huber, M.D.  
R. Murali Krishna, M.D.  
Harald Krueger, M.D.  
Siavash Nael, M.D.  
Robert J. Outlaw, M.D.  
Larry M. Prater, M.D.  
Moorman Prosser, M.D.  
Joe G. Savage, M.D.  
Jay T. Shurley, M.D.  
Harold G. Sleeper, M.D.  
John R. Smith, M.D.  
Bal G. Vad, M.D.  
Sally Varghese, M.D.  
Shreekumar S. Vinekar, M.D.  
Fred W. Weber, M.D.



## WILLOW VIEW HOSPITAL

2601 North Spencer Road 405/427-2441  
P.O. Box 11137  
Oklahoma City, Oklahoma 73136

For information or referral, contact the office  
of the administrator.



**OKLAHOMA CARDIOVASCULAR AND THORACIC SURGERY ASSOCIATES  
THE CARDIAC SURGEONS OF OKLAHOMA CITY, INC.**

**PROFESSIONAL STAFF**

William D. Hawley, MD  
James M. Hartsuck, MD

R. Darryl Fisher, MD  
Marvin D. Peyton, MD  
Scott K. Lucas, MD

Diplomates of  
American Board of Surgery  
American Board of Thoracic and  
Cardiovascular Surgery

Specializing in  
Cardiac, Vascular  
and Thoracic Surgery

Office Hours 8:30 a.m. to 5:00 p.m.  
Monday through Friday  
With 24 Hour Consultation and Referral

**1-800-522-6755**

**(405) 946-0900**

**OFFICES**

3400 N.W. EXPRESSWAY, SUITE 520  
4200 WEST MEMORIAL RD., SUITE 805  
1044 S.W. 44TH, SUITE 520  
1211 NORTH SHARTEL, SUITE 706

OKC, OK 73112  
OKC, OK 73120  
OKC, OK 73109  
OKC, OK 73103



## The Total Sports Medicine Program

Professional, amateur and recreational athletes require diagnosis, treatment, surgery and rehabilitation for their active bodies.

At Oklahoma Center For Athletes, we strive for the prevention of sports injuries through proper medical management. But when those injuries do occur, the athlete deserves the finest in medical care, whether it be from an orthopedic surgeon, internist, certified sports trainer, physical therapist or exercise physiologist. A program of continued prescription physical conditioning returns the athlete to his or her peak performance level.

## OKLAHOMA CENTER FOR ATHLETES

Presbyterian Professional Building  
711 Stanton L. Young Blvd., Suite 308  
Oklahoma City, Oklahoma 73104  
(405) 271-8177



750 Northeast 13th Street  
Near the Oklahoma Health Center  
(2 Blocks East of Lincoln Blvd.)  
Oklahoma City, Oklahoma

Senior Consultants:  
George S. Bozalis, MD  
Vernon D. Cushing, MD†

Specializing in the diagnosis  
and treatment of allergic diseases  
in adults and children.

George L. Winn, MD†  
Robert S. Ellis, MD†\*  
Lyle W. Burroughs, MD†°  
Charles D. Haunschild, MD†°  
James H. Wells, MD†\*  
John R. Bozalis, MD†\*  
James D. Lakin, PhD, MD†\*  
John S. Irons, MD†°  
Warren V. Filley, MD†\*

† Diplomate American Board of Allergy and Immunology  
\* Diplomate American Board of Internal Medicine  
° Diplomate American Board of Pediatrics

Administrator:  
G. Keith Montgomery, MHA

Post Office Box 26827  
Oklahoma City, Oklahoma 73126  
Telephone (405) 235-0040

Research Director:  
Richard A. Strecker, DrPh

By appointment 8 a.m. to 5 p.m. (Wednesday and Saturday 8 a.m. to 12 noon)



# Shawnee Medical Center Clinic, Inc.

2801 N. SARATOGA / P.O. BOX 849 / SHAWNEE, OKLAHOMA 74801 / Phone: 405-273-5801

## ALLERGY

A. M. Bell, MD\*

## ANESTHESIOLOGY CONSULTANTS

Ellis Brown, MD\*

## DERMATOLOGY

Bert C. Frichot, III, MD\*

## GENERAL SURGERY

Frank H. Howard, MD\*  
Jerold D. Kethley, MD  
S. B. VanLandingham, MD\*

## INDUSTRIAL MEDICINE

A. M. Bell, MD  
Jake Jones, Jr., MD

## INTERNAL MEDICINE

Michael W. Butcher, MD  
Merle L. Davis, MD  
Larry D. Fetzer, MD  
Eldon V. Gibson, MD\*  
D. A. Mace, MD  
J. B. Jarrell, MD\*

## NEONATOLOGY

R. K. Mohan, MD

## OBSTETRICS, GYNECOLOGY

Dean W. Papageorge, MD  
Richard E. Jones, MD\*  
Stephen E. Trotter, MD\*

## ORTHOPEDIC SURGERY

T. A. Balan, MD, FAAOS\*  
R. M. Kamath, MD, MS\* (Ortho)  
S. M. Waingankar, MD, MS\* (Ortho)

## OTORHINOLARYNGOLOGY

S. Rishi, MD\*, MS, FACS

## PATHOLOGY CONSULTANT

David L. McBride, MD\*

## PEDIATRICS

A. M. Bell, MD\*  
Jake Jones, Jr., MD\*  
R. K. Mohan, MD\*

## RADIOLOGY CONSULTANTS

William Phillips, MD\*  
Robert G. Wilson, MD\*  
Cranfill K. Wisdom, MD\*

## UROLOGY

N. M. Kotecha, MD\*

## ADMINISTRATOR

W. J. Birney

\*Board Certified

## SOUTHERN PLAINS MEDICAL CENTER INC. and Ambulatory Surgery Facility



## FAMILY PRACTICE

J. W. McDaniel, MD  
J. O. Wood, Jr., MD  
Stuart J. Meyer, MD

## INTERNAL MEDICINE

W. S. Harnson, MD  
D. L. Stehr, MD  
R. S. Davis, MD  
Don R. Hess, MD  
Vernon A. Vix, MD  
Randall L. Jenkins, MD

## CARDIOLOGY

J. T. Bledsoe, MD

## GASTROENTEROLOGY

C. K. Su, MD

## PEDIATRICS

R. E. Herndon, MD  
E. R. Orr, MD  
J. E. Freed, MD  
M. P. Escobar, MD  
D. F. Haslam, PhD, MD

## OBSTETRICS AND GYNECOLOGY

Nancy W. Dever, MD  
Alan J. Weedn, MD

## GENERAL AND VASCULAR SURGERY

Linda M. Johnson, MD  
Virginia Harr, MD  
Myra Campbell, PA

## THORACIC AND VASCULAR SURGERY

Paul B. Loh, MD

## OPHTHALMOLOGY

John R. Gearhart, MD

## UROLOGY

K. T. Varma, MD

## ORTHOPEDIC SURGERY

W. T. Morris, MD  
Keith W. Riggins, MD  
W. M. Ohi, PA

## GENERAL SURGERY AND INDUSTRIAL MEDICINE

C. R. Gibson, MD

## NEUROLOGY

Andrew Gin, MD

## ANESTHESIOLOGY

T. Gowlikar, MD  
Gideon Lau, MD  
M. M. Vaidya, MD

## PHYSICAL MEDICINE AND REHABILITATION

Kumad Vaidya, MD

## RADIOLOGY (Consulting)

Medical Radiology, Inc.

## CLINICAL PSYCHOLOGY

James M. Ross, PhD

## SPEECH PATHOLOGY

Colette Ellis, MEd, CCC

## ALLERGY

W. S. Harnson, MD  
R. E. Herndon, MD

## ADMINISTRATION

James W. Loy

▲ Accredited — Accreditation Association for Ambulatory Health Care, Inc.

MAIN CLINIC  
2222 IOWA, CHICKASHA, OK 224-4853

TIMBER CREEK OFFICE  
ROUTE 3, BOX 124M, TUTTLE, OK 73089



## GLASS-NELSON CLINIC

### INDUSTRIAL MEDICINE

JAMES L. BACON, MD  
GLEN L. BERKENBILE, MD  
GEORGE R. KRIETMEYER, MD  
DONALD W. BOBEK, MD  
THOMAS D. BURNETT, MD

### PRE-EMPLOYMENT

BOB HOWLAND, PA

### PEDIATRICS

HUGH C. GRAHAM, JR., MD  
JOEL K. GIST, MD  
WILLIAM P. SIMMONS, MD

### RADIOLOGY

WILLIAM K. HICKS, MD

### GENERAL SURGERY

ROBERT S. PERRYMAN, MD  
FRANKLIN S. NELSON, MD

### INTERNAL MEDICINE & EXECUTIVE PHYSICALS

WILLIAM F. EWING, MD  
BOYD O. WHITLOCK, MD  
RICHARD H. REID, MD  
R. A. SEARCY, MD  
PHILIP W. PERRYMAN, JR., MD  
KENT A. WOOLARD, MD

### ADMINISTRATION

FRED R. STAFFORD  
GALE CLARK

1923 East 21st Street Box 52218 • TULSA, OKLAHOMA 74152 • PHONE (918) 742-3341

## MULTI-SPECIALTY CLINICAL HEALTHCARE FOR SOUTHEASTERN OKLAHOMA

### INTERNAL MEDICINE

STEVEN D. ATWOOD, M.D.  
CHARLES K. HOLLAND, M.D.  
R. KERN JACKSON, M.D.  
KENNETH R. MILLER, M.D.  
LEROY M. MILTON, M.D.

### GASTROENTEROLOGY

JAMES A. GOLLA, M.D.

### OTOLARYNGOLOGY

DONALD E. CRAWLEY, M.D.  
SAMUEL E. DAKIL, M.D.

### SURGERY

WILLIAM G. BLANCHARD, M.D.  
DAVID MacMILLAN, M.D.

### ALLERGY

PAUL S. THOMAS, M.D.

### PEDIATRICS

DELTA W. BRIDGES, JR., M.D.  
THURMAN SHULLER, M.D.  
PAUL S. THOMAS, M.D.

### RADIOLOGY

BRUCE H. BROWN, M.D.

### FAMILY MEDICINE

JOHN B. COTTON, M.D.  
WILLIAM E. GUPTON, M.D.  
STEPHEN D. SWANK, M.D.  
LARRY D. LEWIS, M.D.

### OBSTETRICS-GYNECOLOGY

ROBERT G. CATES, M.D.  
DAVID L. DOYLE, M.D.  
L. DWAIN DOYLE, M.D.  
W. RILEY MURPHY, JR., M.D.

### ADMINISTRATOR

PAUL BISHOP

# The McAlester Clinic, Inc.

1401 E VAN BUREN AVE. • PO BOX 908 • McALESTER OK 74502 • 918 426-0240



# MEDICAL ARTS CLINIC OF ARDMORE, INC.

921 Fourteenth Avenue Northwest  
Ardmore, Oklahoma 73401

## General Surgery

THORNTON KELL, MD, FACS

\*TOM SPARKS, MD, FACS

\*WILFRED S. GAUTHIER, MD, FACS

## Obstetrics and Gynecology

†MICHAEL B. BEASON, MD

## Radiology (Consultants)

\*MICHAEL W. BROWN, MD

\*JAMES A. CHAPMAN, MD

## Pathology (Consultant)

\*CARL A. SCHWEERS, MD

## Internal Medicine

J. HOBSON VEAZEY, MD

\*CLIFFORD LORENTZEN, MD, FACP

\*DAVID D. ROSE, MD

\*JOE R. HAMILL, MD

\*KEVIN H. REED, MD

\*MY Q. TRAN, MD

## Gastroenterology

†MY Q. TRAN, MD

## Administrator

ROGER H. HUGHES

Phone: A/C 405-223-5311

\*Specialty Board Diplomate

†Specialty Board Eligible

# Orthopedic & Arthritis Center

McBRIDE CLINIC, Inc.

1111 North Dewey / Oklahoma City, Oklahoma / 232-0341

## DEPARTMENT OF ORTHOPEDICS

\*Marvin K. Margo, MD, FACS

\*James P. Bell, MD, FACS

\*Stephen Tkach, MD, FACS

\*Joseph F. Messenbaugh III, MD, FACS

\*J. Patrick Evans, MD, FACS

\*Edwin E. Rice, MD, FACS

\*Warren G. Low, MD

\*Thomas C. Howard, III, MD

David H. Holden, MD

## DEPARTMENT OF ARTHRITIS

John A. Blaschke, MD

Mary L. Duffy Honick, MD

\*Richard J. Hess, MD, FACP

\*Jon W. Blaschke, MD

\*R. Eugene Arthur, MD

## DEPARTMENT OF OCCUPATIONAL and INDUSTRIAL MEDICINE

Jack W. Parrish, MD

\*Specialty Board Diplomate

MANAGEMENT SERVICES  
James A. Hyde, Administrator





## ORTHOPEDIC ASSOCIATES, INC.

3301 N.W. 50th  
Oklahoma City, Oklahoma 73112  
(405) 947-0911

David R. Brown, MD  
Ralph E. Payne, Jr., MD  
J. Charles Monnet, MD

David A. Flesher, MD  
Nathan E. Bradley, MD  
Thomas H. Flesher III, MD

Diplomates of American Board of Orthopaedic Surgery

**Sports Medicine**  
**Arthroscopic Surgery**

**Surgery of the Spine**  
**Total Joint Replacement**



## THE ARTHRITIS CLINIC

Lloyd G. McArthur, PhD, MD

Winfred L. Medcalf, MD  
Robert C. Troop, PhD, MD

207 C Street NW

Ardmore, Ok. 73401

Phone (405) 223-5180

## PATHOLOGISTS

Jack M. Stephenson, M.D.  
Paul E. Kaldahl, M.D.  
Perry A. Lambird, M.D.  
Michael R. Harkey, M.D.  
Thomas A. Hosty, M.D.  
John R. Rogers, M.D.  
Hatton W. Sumner, M.D.

Ronald J. Biscopink, M.D.  
Robert C. MacKay, M.D.  
Dan F. Keller, M.D.  
Willard Aronson, M.D.  
Fay Knickerbocker, M.D.  
Lynn B. Moon, M.D.  
Peter F. Brumbaugh, M.D.



## Medical Arts Laboratory

100 PASTEUR BUILDING - 1111 N. LEE  
OKLAHOMA CITY, OKLAHOMA 73103

## PATIENT CARE FACILITIES

Pasteur Medical Bldg.  
Room 300 East  
1111 N. Lee

Memorial Professional Bldg.  
13439 N. Broadway Ext.  
Edmond, Okla. 73034

Physicians & Surgeons Bldg.  
Room 105  
1211 N. Shartel

West Laboratory  
Room 100  
3400 N.W. Expressway

North Laboratory  
Room 107  
4200 W. Mem. Rd.

South Laboratory  
Room 107  
1044 S.W. 44

East Laboratory  
Room 113  
711 Stanton Young Blvd.

Classen Laboratory  
1110 N. Classen Blvd.

## TELEPHONE FOR ALL LOCATIONS

Local .....239-7111

OK Toll Free .....1-800-942-3514

## OKLAHOMA HAND SURGERY CENTER, INC.



Carlos A. Garcia-Moral, MD, FACS

405/232-3210

711 Stanton L. Young Boulevard, Suite 510

Oklahoma City, Ok 73104

## OKLAHOMA LUNG FUNCTION LABORATORY, INC.

R.J. Dougherty, MD

- ☐ Oxygen saturation by oximetry  
(To meet Medicare criteria for  
continued reimbursement for home  
oxygen use)
- ☐ Arterial blood gas analysis

- ☐ Clinical spirometry
- ☐ Lung volumes
- ☐ Diffusing capacity
- ☐ Diagnostic skin testing

235-3338

1111 North Lee, Pasteur Building 224

235-1701

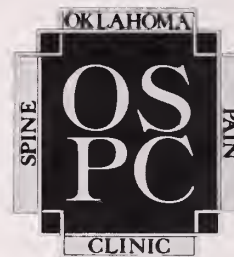
## OKLAHOMA UROLOGY CENTER

CHARLES L. REYNOLDS, JR., MD, INC.

Urology-Genitourinary Surgery  
Diseases Kidney-Bladder-Prostate  
Female-Male Children & Adults  
Micro Surgery for Infertility  
Prosthetic Surgery for Impotency  
Urinary Incontinence

3131 NORTHWEST EXPRESSWAY  
SUITE 201  
OKLAHOMA CITY, OKLAHOMA 73112

TOLL FREE (800) 522-8668  
OFFICE (405) 843-5761 RESIDENCE (405) 842-6420  
IF NO ANSWER (405) 523-1999



## Oklahoma Spine/Pain Clinic

Multi-disciplinary approach  
to evaluation and treatment  
of acute or chronic musculoskeletal pain.

William N. Harsha, MD  
Diplomate American Board Orthopaedic Surgery

Doctors Medical Building  
Oklahoma City, Oklahoma 73112  
5700 N.W. Grand Blvd.  
(405) 943-9561

## CENTRAL OKLAHOMA AMBULATORY SURGICAL CENTER, INC.

W. Edward Dalton, MD, FACS Paul Silverstein, MD, FACS J. Michael Kelly, MD, FACS  
Plastic, Reconstructive & Cosmetic Surgery; Surgery of the Hand & Congenital Deformities;  
Oncologic Surgery of the Head and Neck, Burn Surgery

3301 Northwest 63rd Street, Oklahoma City, Okla. 73116  
(405) 946-0731

Board Certified in Plastic Surgery  
Board Certified in General Surgery

### AEROSPACE MEDICINE

CLYDE A. LYNN, BA, MPH, MD  
Board Certified, Aerospace Medicine  
Fellow, American College of Preventive Medicine  
Flight Surgeon, US Army and Navy  
Commercial Pilot and Flight Instructor, Instrument and Multi-engine  
Referrals for Medical Certification of Pilots Accepted  
by Appointment  
1317 Brookhaven Blvd. Norman, OK 73069 Senior Aviation Examiner (405) 329-2625  
FAA NO. 07448-1

### ALLERGY

Northwest Medical Center  
NORTHWEST ALLERGY CLINIC, INC.

Suite 602

John L. Davis, M.D.  
3330 N.W. 56th  
Oklahoma City, Oklahoma 73112  
405 843-6619



JAMES A. MURRAY, MD, INC.  
Diagnosis and Treatment of Allergic Diseases  
Adults and Children

JAMES A. MURRAY, MD  
Fellow American Academy of Allergy  
Fellow American College of Allergists  
Diplomate American Board of Allergy and Immunology

Suite 101 6465 South Yale Avenue  
Warren Professional Building (918) 492-0484  
Tulsa, Oklahoma 74177

#### OKLAHOMA ALLERGY CLINIC, INC.

Specializing in the Diagnosis and Treatment of Allergic Disease

George L. Winn, MD† John R. Bozalis, MD†  
Robert S. Ellis, MD† James D. Lakin, PhD, MD†  
Lyle W. Burroughs, MD† John S. Irons, MD†  
Charles D. Haunschild, MD† Warren V. Filley, MD†  
James H. Wells, MD†

Senior Consultants: George S. Bozalis, MD; Vernon D. Cushing, MD†

† Diplomate American Board of Allergy and Immunology  
\* Diplomate American Board of Internal Medicine  
° Diplomate American Board of Pediatrics

Office Address: 750 Northeast 13th Street  
Telephone 405-235-0040  
Mail Address: Post Office Box 26827  
Oklahoma City, OK 73126

## CARDIOVASCULAR

### CARDIOVASCULAR ASSOCIATES

Adult Cardiovascular Diseases

Cardiac Catheterization, Aortography and Selective Coronary Arteriography  
Coronary and Peripheral Angioplasty

Telephone Electrocardiography (24 hr. service), Treadmill  
Effort Tolerance, Hypertensive Evaluation

\*J.J. Donnell, MD 947-2556 \*G.L. Honick, MD 943-8428

\*J.L. Bressie, MD 946-0568 A.F. Elliott, MD 943-8421

A.S. Dahr, MD 947-2321 Gary Worcester, MD 943-4134

\*Jan Voda, MD 947-1297 Stanley A. Horst, MD 946-0606

\*Certified by the American Board of Cardiovascular Disease  
Doctors Medical Building

8th Floor 5700 N.W. Grand Blvd. Oklahoma City, Oklahoma 73112

### CARDIOVASCULAR CLINIC

Wm. Best Thompson, MD Ronald H. White, MD W.H. Oehlert, MD  
Galen P. Robbins, MD William J. Fors, MD Charles F. Bethea, MD  
Williams S. Myers, MD Fred E. Lybrand, MD  
Lawrence M. Higgs, MD Mel Clark, MD

### CARDIOVASCULAR DISEASES

Cardiac catheterization, aortography and coronary arteriography  
Coronary and Peripheral angioplasty, telephone electrocardiography  
and echocardiography

Nuclear cardiology and Treadmill effort tolerance

### CARDIOVASCULAR BUILDING

3300 Northwest 56th Oklahoma City, Okla. 73112 Telephone 947-3341

## DERMATOLOGY

### RONALD W. GILCHRIST, JR., MD

Diseases and Malignancies of the Skin

Oklahoma City, OK 73109 X-Ray and CO<sub>2</sub> Laser Therapy 632-5565  
3500 South Western

### SKIN & SKIN CANCER CENTER, INC.

C. Jack Young, MD

Radium Therapy Hemangiomas X-Ray Therapy

CLINIC BUILDING 3434 N W 56th  
OKLAHOMA CITY, OKLAHOMA 946-5678

## ENDOCRINOLOGY - METABOLISM - DIABETES

### JOHN WHITFIELD DRAKE, MD

Diplomate American Board of Internal Medicine in Endocrinology

Langston Medical Clinic, Inc. / 842-8655

3200 W Wilshire Blvd. Oklahoma City, Oklahoma 73116

## GASTROENTEROLOGY

S.A. KHAN, MD, MRCP, (UK)  
Diplomate American Board of Internal Medicine  
in Gastroenterology

### THERAPEUTIC GI ENDOSCOPY

Sclerosis of Esophageal Varices, Colonic Polypectomy  
ERCP, Gastric Outlet Dilatation, YAG - Laser

Pasteur Medical Building, #211, Okla. City, Oklahoma 235-9275  
2801 Parklawn, #401, Midwest City, Oklahoma 732-6223

## OPHTHALMOLOGY

### JAMES L. DUNAGIN, JR., MD

Diseases and Surgery of the Eye

Diplomate American Board of Ophthalmology

6th and Washington 918-426-1432 McAlester, Oklahoma 74501

### John W. Huneke, MD, FACS, Inc.

Diseases and Surgery of the Eye

Certified by the American Board of Ophthalmology

Phone 332-1880 1414 Arlington Suite 2300 Ada, Oklahoma 74820

JAMES B. MILLS, MD 232-4222  
Surgery and Diseases of the Eye

JAY C. JOHNSTON, MD 232-5543  
Lacrimal Surgery, Dacryocystorhinostomy, Jones Tubes

Certified by the American Board of Ophthalmology  
425 NW 11th Street Oklahoma City 73103

### V. JERRY SHEPERD, MD

Diseases and Surgery of the Eye

Certified by the American Board of Ophthalmology

3400 N.W. 56th St. Suite G-2 Phone 946-3327 Oklahoma City 73112

## ORTHOPEDICS

### DUNCAN REGIONAL ORTHOPAEDIC ASSOCIATES, INC.

THOMAS J. EISER, MD

ROBERT M. SIMPSON, MD

ORTHOPAEDIC SURGERY & SURGERY OF THE HAND

DIPLOMATES AMERICAN BOARD OF ORTHOPAEDIC SURGERY  
FELLOWS, AMERICAN ACADEMY OF ORTHOPAEDIC SURGEONS

2815 W. Elk  
OFFICE (405) 252-3400 DUNCAN, OKLAHOMA 73533

### ORTHOPEDIC SURGERY AFFILIATES, INC.

1044 S.W. 44th

Oklahoma City, Oklahoma 73109

405-631-7444

Dale R. Butler, MD, FACS

J.A. Rosacker, MD

G. David Casper, MD

### HOUSHANG SERADGE, MD, FICS

Diplomate American Board of Orthopaedic Surgery

Hand and Reconstructive Microsurgery

1044 S.W. 44th Street, Suite 620

Oklahoma City, Oklahoma 73109

Phone (405) 631-4263

## ORTHOPEDICS (continued)

JOHN RAYMOND STACY, MD, FACS  
Diplomate American Board of Orthopedic Surgery  
Orthopedic and Fracture Surgeon  
415 N W 12th St Oklahoma City, Oklahoma 235-6315

## OTOLARYNGOLOGY HEAD AND NECK SURGERY

Oklahoma Otolaryngology Associates  
RAYMOND O. SMITH, JR., MD, FACS  
Head and Neck Surgery  
Facial Plastic and Reconstructive Surgery  
4200 West Memorial Road, Suite 606  
Oklahoma City, Oklahoma 73120  
Phone 405 755-1930

## PEDIATRIC SURGERY

E. IDE SMITH, MD\* WM. P. TUNELL, MD\* DENNIS J. HOELZER, MD\*

940 NE 13th Street, Oklahoma City, Oklahoma 73104  
Office: 405-271-4356 After hours: 405-523-6739 (then enter your phone no.)  
\*American Board of Surgery — Special Competence in Pediatric Surgery

## PSYCHIATRY

LARRY PRATER, MD  
Practice Limited to Psychiatry  
Suite 318 Classen Professional Bldg 232-5453/272-7155  
1110 Classen Boulevard Oklahoma City, Oklahoma 73106

PSYCHIATRY  
Robert J. Outlaw, MD, FAPA  
R. Murali Krishna, MD, MAPA  
Diplomates of American Board of Psychiatry and Neurology in Psychiatry  
Shree S. Vinekar, MD, FAACP  
Diplomate of American Board of Psychiatry and Neurology  
in Psychiatry and Child Psychiatry  
John C. Andrus, MD, MAPA  
Thurman E. Coburn, PhD, Licensed Clinical Psychologist  
Philip J. Murphy, PhD, Licensed Clinical Psychologist  
David Schwartz, ACSW, Clinical Psychiatric Social Worker  
Suite 308 Physicians and Surgeons Building  
1211 North Shartel, Oklahoma City 73103  
(405) 272-0734

## JAY TALMADGE SHURLEY, MD

Life Fellow, American Psychiatric Association;  
Charter Fellow, American College of Psychiatrists

Emeritus Professor of Psychiatry & Behavioral Sciences  
University of Oklahoma College of Medicine  
Consultant in Neuropsychiatry, SLEEP DISORDERS CENTER, Presbyterian Hospital

Diagnosis, Management & Treatment of  
DISORDERS OF SLEEPING, WAKING, & DREAMING  
(Emphasis on Narcolepsy, Sleep Walking, Nightmares)

6406 "A" North Santa Fe  
Oklahoma City, OK 73116 (405) 840-3793

## HAROLD G. SLEEPER, MD, FAPA

Diplomate American Board of Psychiatry  
and Neurology in Psychiatry  
Adult and Adolescent Psychiatry  
2801 Parklawn Drive, Suite 505  
Midwest City, Oklahoma 73110  
(405) 733-8244

## PULMONARY DISEASE

### PULMONARY ASSOCIATES

STEPHEN N. ADLER, MD TIMOTHY L. GRODE, MD  
Diplomates  
American Board of Internal Medicine  
American Board of Internal Medicine - Pulmonary Disease

Pulmonary Medicine  
Pulmonary Function and Methacholine Testing  
Pulmonary Artery (Swan-Ganz) Catheterization  
Fiberoptic Bronchoscopy  
Lung Needle Biopsy  
Critical Care Medicine  
Mercy Doctors Tower 4200 Memorial Road  
Oklahoma City, OK 73120 (405) 755-4290

### RAYMOND J. DOUGHERTY, MD

Diplomate American Board of Pulmonary Disease  
Practice Limited to Pulmonary Disease

Special Interest in Adult and Adolescent Asthma

204 Pasteur Building 235-1701  
Oklahoma City, Oklahoma 73103

### NORMAN K. IMES, MD

### DENNIS M. PARKER, MD

Diplomates American Board of Internal Medicine  
American Board of Internal Medicine - Pulmonary Disease  
Consultants in Diseases of the Chest  
Fiberoptic Bronchoscopy  
Pulmonary Function Evaluation  
Intensive Care Medicine

3330 N.W. 56 Street (405) 949-9400  
Oklahoma City, Oklahoma 73112

## RADIOLOGY

### CHET BYNUM, MD

### GLENNA YOUNG, MD

Fluoroscopy  
Xeromammography  
DIAGNOSTIC RADIOLOGY  
Tomography  
Ultra Sonography  
WHOLE BODY CT SCANNING

13301 N. Meridian Bldg 300  
Oklahoma City, Oklahoma 73120  
(405) 752-0186

1125 N. Porter  
Norman, Okla. 73071  
(405) 364-1071

### RADIOLOGY ASSOCIATES, INC.

JAMES T. BOGGS, MD MICHAEL A. SARTIN, MD  
ROBERT SUKMAN, MD, FACR RALF E. TAUPMANN, MD  
WILLIAM R. ALBRACHT, MD GARY G. ROBERTS, MD  
ROGER B. COLLINS, MD JOHN R. OWEN, MD  
GEORGE BEN CARTER, MD HAROLD D. DAVIDSON, MD  
RICHARD B. PRICE, MD, FACR, DABNM JAY A. HAROLDS, MD, DABNM

Diplomates American Board of Radiology  
X-Ray-Diagnosis including Ultra Sonography, Xeromammography,  
Radiation Therapy — Nuclear Medicine — CAT Scanning  
Digital Subtraction

204 Medical Tower Bldg. 848-7741 Baptist Medical Center 949-3202  
400 Physicians Prof. Bldg. 943-9646 Deaconess General Hospital 946-5581  
700 Doctors Medical Bldg. 946-9923 206 N.W. Med. Ctr. Bldg. 946-8999

RADIOLOGIC SPECIALTIES, LTD  
4045 Northwest 64th Street, Suite 125  
Oklahoma City, Oklahoma 73116

Practice Limited To Whole Body CT Scanning

V.C. Tisdal III, MD (405) 848-0075 Rebecca Goen Tisdal, MD

Diplomates American Board of Radiology

## SURGERY

James E. Cheatham, Jr., MD

3400 N.W. Expressway, Suite 607  
Oklahoma City, OK 73112  
948-7272

Specializing in Open Heart Surgery

ROBERT B. HOWARD, MD, FACS

Certified American Board of Surgery

Practice Limited to General Surgery and Diseases of the Thyroid Gland  
544 Pasteur Medical Bldg. Phone 235-2341 Oklahoma City

MICHAEL E. REIF, MD

Diplomate American Board of Surgery

Fellow American College of Surgery

General and Peripheral Vascular Surgery

708 Mercy Doctors Tower By Appointment 755-1750  
4200 West Memorial Road Oklahoma City, OK 73120 After Hours 232-8861

## SURGERY, COLON AND RECTAL

ROBERT J. CAPEHART, MD

2325 South Harvard

Tulsa, Oklahoma 74114

Suite 306

(918) 744-5817

Practice Limited To Colon & Rectal Surgery and Colonoscopy

## SURGERY, HAND

Patrick T. Sterbank, PA

Physician Associate

HOUSHANG SERADGE, MD, FICS

Diplomate American Board of Orthopaedic Surgery  
Hand and Reconstructive Microsurgery

1044 S.W. 44th Street, Suite 620  
Oklahoma City, Oklahoma 73109  
Phone (405) 631-4263 631-HAND

## SURGERY, RECONSTRUCTIVE AND PLASTIC

PARAMJIT S. BAJAJ, MD, FACS  
FRCS (England), FRCS (Edinburgh)  
Certified American Board of Plastic Surgery  
Maxillofacial and Cosmetic Surgery  
Surgery of the Hand

1110 N. Classen Blvd.  
Suite 304

235-6671  
Oklahoma City, Okla. 73106

LEONARD H. BROWN, MD

Diplomate American Board of Surgery  
Diplomate American Board of Plastic Surgery  
Plastic and Reconstructive Surgery  
Cosmetic Surgery

6913 S. Canton Tulsa, Oklahoma 74136 492-3964

WILLIAM J. FORREST, MD

Plastic and Reconstructive Surgery  
Surgery of the Hand

3400 N.W. Expressway

Oklahoma City

947-8760

HERBERT M. KRAVITZ, MD, FACS

Diplomate American Board of Plastic Surgery  
Reconstructive, Cosmetic and Cleft Palate Surgery

Office (405) 946-2694

2620 Northwest Expressway

Oklahoma City, Oklahoma

## UROLOGY

GENE T. BAUMGARNER, MD, FACS

Diplomate of the American Board of Urology

Mercy Doctors Tower  
4200 West Memorial Road

Oklahoma City, Oklahoma 73120

(405) 755-3723

A. de QUEVEDO, MD, Inc.

Diplomate of the American Board of Urology

Suite 606

1211 N. Shartel

Oklahoma City, Oklahoma 73103

232-1333

PHILIP D. DIGGDON, MD, FACS

Diplomate of the American Board of Urology

312 Warren Prof. Bldg, 6465 S. Yale, Tulsa, OK

Office: (918) 492-6322 Home: (918) 492-1143

Same day service

2801 Parklawn Dr., #300

CLARK HYDE, MD

1110 N. Classen, #205

Pediatric and Adult Urology

Midwest City, OK 73110  
(405) 737-5667

Oklahoma City, OK 73106  
(405) 232-0273

BARNEY J. LINES, MD, FACS

1211 N. Shartel, Suite 208

Oklahoma City, Okla. 73101

Phone 235-0315

2801 Parklawn Dr., Suite 300

Midwest City, Okla. 73110

Phone 737-3538

Practice Limited to Urology

Diplomate American Board of Urology

JOSEPH D. PARKHURST, MD, FACS

Diplomate American Board of Urology

2345 N. Tompkins

Bethany, OK 73008

495-6134

CHARLES L. REYNOLDS, JR., MD, FACS, FICS  
DIPLOMATE of the AMERICAN BOARD of UROLOGY  
DISEASES of the KIDNEY, BLADDER, and PROSTATE

3131 NORTHWEST EXPRESSWAY  
OKLAHOMA CITY, OKLAHOMA 73112

OFFICE (405) 843-5761

RESIDENCE (405) 842-6420

IF NO ANSWER (405) 523-1999

1110 Classen Blvd.  
Oklahoma City, OK  
73106

JAMES R. WENDELKEN, MD  
Pediatric and Adult Urology

2801 Parklawn  
Midwest City, OK  
73110

Telephone (405) 232-0273

PHILLIP H. WINSLOW, MD, FACS

Diplomate American Board of Urology

Hours by Appointment

(405) 765-7620

Answering Service: (405) 765-5826

Medical Plaza

123 Patton Drive

Ponca City, OK 74601

Professional Card listings are available to Members.  
They are sold in vertical increments of  
one-half inch, at the rate of \$50.00 per year.



## INDEX TO ADVERTISERS

The Arthritis Clinic .....	132
Burroughs Wellcome ( <i>Wellbutrin</i> ) .....	79
The Cardiac Surgeons of Oklahoma City, Inc. ....	127
Central Oklahoma Ambulatory Surgical Center, Inc. ....	134
Curtis 1000 Information Systems .....	125
Edmond Medical Plaza .....	112
C. L. Frates & Co., Inc. ....	114
Glass-Nelson Clinic .....	130
Harsha Orthopedic, Inc. ....	134
Eli Lilly ( <i>Ceclor</i> ) .....	80
McAlester Clinic .....	130
Medical Arts Clinic of Ardmore .....	131
Medical Arts Laboratory .....	133
James B. Morris II & Associates .....	117
Oklahoma Allergy Clinic .....	128
Oklahoma Center for Athletics .....	128
Oklahoma City Clinic .....	IFC
Oklahoma Hand Surgery Center, Inc. ....	133
Oklahoma Lung Function Laboratory .....	133
Oklahoma Urology Center .....	134
Orthopedic & Arthritis Center .....	131
Orthopedic Associates .....	132
PLICO .....	76, 84
Prodata Medical Systems .....	75
Professional Office Management .....	78
Rehabilitation Institute of Oklahoma .....	107
Roche Products, Inc. ( <i>Dalmane</i> ) .....	IBC, BC
RTS .....	108
Shawnee Medical Center Clinic, Inc. ....	129
SmithKline & Beckman ( <i>Dyazide</i> ) .....	82, 123
Southern Plains Medical Center, Inc. ....	129
Tulsa Adjustment Bureau, Inc. ....	111
The Upjohn Company ( <i>Motrin 800</i> ) .....	81
G. D. Williamson, MD .....	115, 116
Willow View Hospital .....	126
Windy Meadow Farm .....	83



## OFFICERS of the OKLAHOMA STATE MEDICAL ASSOCIATION

Elvin M. Amen, MD, President;  
Norman L. Dunitz, MD, President-Elect;  
M. Joe Crosthwait, MD, Vice-President; Ray L. Cornelison, Jr., MD,  
Secretary-Treasurer; Larry L. Long, MD, Speaker, House of Delegates;  
Robert G. Perryman, MD, Vice-Speaker, House of Delegates; Michael  
J. Haugh, MD, Chairman, Board of Trustees; and James B. Eskridge  
III, MD, Immediate Past President.

## INSTRUCTIONS FOR AUTHORS

### Contributions

Articles submitted for publication, including Annual Meeting papers, become the sole property of the JOURNAL and must not have been published elsewhere. The Editorial Board reserves the right to edit any material submitted. Manuscripts must be typewritten, double-spaced, and submitted in duplicate. Receipt of manuscripts will be acknowledged, and unpublished manuscripts will be returned. The JOURNAL does not assume responsibility for the statements or opinions of any contributor.

### Style

All manuscripts should adhere to the style adopted by the American Medical Association as illustrated in *JAMA* and detailed in the AMA's *Manual for Authors & Editors*. Footnotes, bibliographies, and legends for illustrations should be typewritten, double-spaced, on separate sheets. References are to be listed in the order of their appearance in the article.

### Illustrations

Illustrations other than the author's will not be accepted for publication unless accompanied by written permission from the original source. Illustrations should be labeled with the author's name and must be numbered in the order in which they are referred to in the article. The quality of all illustrations must be in keeping with the quality of the magazine.

### News

Readers are encouraged to submit news items of interest to Oklahoma physicians. Where dates of meetings, etc., are important, please remember that each issue closes on the first day of the *preceding* month and reaches subscribers in the latter half of the month of publication.

### Reprints

Authors will receive reprint order forms from the Transcript Press, 222 East Eufaula, Norman, Oklahoma 73069, prior to publication of their articles. Other requests for reprints must be made to the Transcript Press within 30 days after publication.

### Back Issues

Microfilm copies of back issues of the JOURNAL can be purchased from University Microfilms International, 300 North Zeeb Road, Ann Arbor, Michigan 48106.

## Project Phoenix — The Gift of Life

Organ and tissue transplants save lives and suffering. That's a miracle. We can all help make miracles happen. Organ donation truly is a miracle because it can help save and improve the lives of others. A critically injured teenager's organs and tissues enabled a twelve-year-old boy to gain his sight with a cornea transplant, a young father of four to obtain a new heart, a seriously ill housewife to receive a new liver, a badly burned two-year-old to be saved with a skin graft, and two patients to become free of dialysis through kidney transplantation.

Project Phoenix is named after the mythical bird which symbolizes immortality by giving life through death. This project is an active effort by the national auxiliaries to foster organ and tissue donation. Since the project's early beginnings on a local level in Louisville, Kentucky, it has grown into a national auxiliary endeavor. The Oklahoma State Medical Association Auxiliary became active in the project in 1978. To date some of the state's projects have included a Project Phoenix workshop in 1978 which helped train auxiliaries to give talks on organ donation in their local communities, to place "Gift of Life" posters in tag agencies around the state, and to help lobby for the organ donor consent on the state driver's license.

There's a critical need for organ donation both on a state and national level. Thousands of lives could be saved and tens of thousands could be improved if enough transplantable organs and tissues were available. For example, this year it is estimated that:

- More than 3000 people will need cornea transplants;
- More than 7000 people will need kidney transplants;
- More than 300 people will need heart transplants;
- Hundreds of people would benefit from liver transplants;
- 2000 people will need bone marrow transplants;

- Thousands of people could benefit from pancreas transplants;

- More than 100,000 adults and children with serious burns will need skin grafts;

- Tens of thousands of people could benefit from bone transplants.

Despite these large numbers, only an estimated 3000 out of 23,000 potential donors donated during 1985. It is our goal for 1986 to work closely with the newly formed Oklahoma Organ Donor Hotline. This hotline, **1-800-826-LIFE** was announced by Governor Nigh in April 1985. The purpose of the hotline is to increase the number of organ and tissue donors in the state of Oklahoma. The Oklahoma Organ Donor Hotline is affiliated with all the major organ and tissue donor facilities in the state of Oklahoma. This telephone number is manned 24 hours a day, 7 days a week, and provides both public and professional information for organ and tissue donation.

Some common and understandable fears about becoming an organ donor have become apparent to the staff of the hotline:

- Will my hospital treatment suffer if I'm a declared donor?

- Will my family have to pay any fees for the procurement procedure?

- Will my body be disfigured by the procurement operation?

- Will organ donation interfere with any funeral arrangements the family wishes to make?

The answer to each of the questions is "No."

The miracle of organ and tissue transplantation can occur only through the humanitarian gift of others. It is our responsibility to support it and to make the public and the medical profession aware of this great need.

— Leslie Samara  
Project Phoenix Chairman

---

## THE LAST WORD

■ **Thinking of submitting a manuscript to the JOURNAL?** Please take a minute to study the JOURNAL's Instructions for Authors which appear in each issue. Following these guidelines in the preparation of your manuscript will facilitate its handling by the staff and printer.

■ **OSMA members and all other JOURNAL subscribers** are asked to report changes of address as soon as possible to avoid missing any issues. As second class mail, JOURNALS will not be forwarded by the postal service. Instead, covers with incorrect mailing labels are torn off and returned to OSMA (for a fee) so that OSMA records can be updated. Meanwhile the subscriber misses an issue of the JOURNAL.

■ **Several severe neurological inquiries** may be associated with administration of diphtheria-tetanus-pertussis vaccines while many others cannot, according to an ad hoc panel of the AMA reporting in the *Journal of the American Medical Association*. Among vaccine-associated conditions that may last more than one year: encephalopathy, complex febrile convulsions, and afebrile convulsions. Among conditions that cannot be related to vaccines: aseptic meningitis, sudden infant death syndrome, Reye's syndrome, Guillain-Barré syndrome, infantile spasms, acquired hemolytic anemia, chronic brain syndrome without acute encephalopathy, peripheral mononeuropathy, transverse myelitis, arthritis/arthralgia, and thrombocytopenic purpura.

■ **Interleukin 2 production drops 85% after severe hemorrhage or accidental injury**, making patients more vulnerable to life-threatening sepsis, according to a study from UCLA Medical Center published in the *Archives of Surgery*. Edward Abraham, MD, and Raymond F. Regan, MD, measured interleukin 2 production by mononuclear cells in 21 patients immediately after hemorrhage or trauma and found that production declined 56% in patients with moderate injury and 85% with severe injury, compared with controls. "These results indicate that marked abnormalities in cell-mediated immune func-

tion occur immediately after such injuries," they say. The impaired immune response presumably makes such patients vulnerable to deadly infection.

■ **The University of Oklahoma College of Medicine** will hold its second annual Research Fund Dinner on March 13 at 6:30 PM in the Skirvin Plaza Hotel ballroom. During the event, the Dean's Award for Distinguished Medical Service will be presented to George H. Garrison, MD. Stewart G. Wolf, MD, professor of medicine at Temple University and director of the Tott's Gap Medical Research Institute in Pennsylvania will be the guest speaker. Tables or individual tickets may be reserved by calling the College of Medicine Alumni Office, (405) 271-2353. The annual Research Fund Dinner was started to bring the medical and business communities in Oklahoma together in a joint effort to ensure adequate levels of public and private support for medical research at the College of Medicine. The first dinner raised over \$130,000.

■ **Presbyterian Hospital in Oklahoma City** has generously donated equipment to the OSMA's first aid station, which operates in the Oklahoma State Capitol during legislative sessions, and AMCARE will be supplying oxygen for the station. The OSMA would like to take this opportunity to thank these organizations once again for their contributions.

■ **LAWSUIT DEADLINE: A. H. Robins Co., Inc.** has announced a federal court ruling that establishes a cut-off date for Dalkon Shield claims. Any action for damages resulting from use of the Dalkon Shield must be filed by April 30, 1986. Patients not filing claims on or before April 30 will lose their right to make a claim. Robins, manufacturer of the intrauterine birth control device, has filed for bankruptcy under Chapter 11 of the US Bankruptcy Code. For information on filing a claim, or to file a claim, write Dalkon Shield, PO Box 444, Richmond, VA 23203. □



EXCERPTS FROM A SYMPOSIUM  
"THE TREATMENT OF SLEEP DISORDERS"

"... highly effective  
for both sleep induction and  
sleep maintenance"

Sleep Laboratory Investigator  
Pennsylvania

"... onset of action is  
rapid... provides sleep with  
no rebound effect to agitate the  
patient the following day"

Psychiatrist  
California

"... appears to have  
the best safety record of any  
of the benzodiazepines"

Psychiatrist  
California

After 15 years, the experts still concur about the continuing value of Dalmane (flurazepam HCl/Roche). It provides sleep that satisfies patients... and the wide margin of safety that satisfies you.

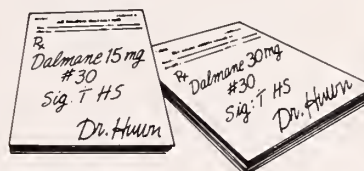
The recommended dose in elderly or debilitated patients is 15 mg. Contraindicated in pregnancy.

**DALMANE**<sup>®</sup>  
flurazepam HCl/Roche<sup>®</sup>  
sleep that satisfies

15-mg/30-mg  
capsules



**References:** 1. Koles J, et al: *Clin Pharmacol Ther* 12:691-697, Jul-Aug 1971. 2. Koles A, et al: *Clin Pharmacol Ther* 18:356-363, Sep 1975. 3. Koles A, et al: *Clin Pharmacol Ther* 19:576-583, May 1976. 4. Koles A, et al: *Clin Pharmacol Ther* 32:781-788, Dec 1982. 5. Frost JD Jr, DeLucchi MR. *J Am Geriatr Soc* 27:541-546, Dec 1979. 6. Dement WC, et al: *Behav Med*, pp. 25-31, Oct 1978. 7. Koles A, Koles JD: *J Clin Psychopharmacol* 3:140-150, Apr 1983. 8. Tennant FS, et al: Symposium on the Treatment of Sleep Disorders, Teleconference, Oct 16, 1984. 9. Greenblatt DJ, Allen MD, Shader RI: *Clin Pharmacol Ther* 21:355-361, Mar 1977.



**DALMANE**<sup>®</sup>  
flurazepam HCl/Roche<sup>®</sup>

Before prescribing, please consult complete product information, a summary of which follows:

**Indications:** Effective in all types of insomnia characterized by difficulty in falling asleep, frequent nocturnal awakenings and/or early morning awakening, in patients with recurring insomnia or poor sleeping habits, in acute or chronic medical situations requiring restful sleep. Objective sleep laboratory data have shown effectiveness for at least 28 consecutive nights of administration. Since insomnia is often transient and intermittent, prolonged administration is generally not necessary or recommended. Repeated therapy should only be undertaken with appropriate patient evaluation.

**Contraindications:** Known hypersensitivity to flurazepam HCl; pregnancy. Benzodiazepines may cause fetal damage when administered during pregnancy. Several studies suggest an increased risk of congenital malformations associated with benzodiazepine use during the first trimester. Warn patients of the potential risks to the fetus should the possibility of becoming pregnant exist while receiving flurazepam. Instruct patients to discontinue drug prior to becoming pregnant. Consider the possibility of pregnancy prior to instituting therapy.

**Warnings:** Caution patients about possible combined effects with alcohol and other CNS depressants. An additive effect may occur if alcohol is consumed the day following use for nighttime sedation. This potential may exist for several days following discontinuation. Caution against hazardous occupations requiring complete mental alertness (e.g., operating machinery, driving). Potential impairment of performance of such activities may occur the day following ingestion. Not recommended for use in persons under 15 years of age. Withdrawal symptoms rarely reported; abrupt discontinuation should be avoided with gradual tapering of dosage for those patients on medication for a prolonged period of time. Use caution in administering to addiction-prone individuals or those who might increase dosage.

**Precautions:** In elderly and debilitated patients, it is recommended that the dosage be limited to 15 mg to reduce risk of oversedation, dizziness, confusion and/or ataxia. Consider potential additive effects with other hypnotics or CNS depressants. Employ usual precautions in severely depressed patients, or in those with latent depression or suicidal tendencies, or in those with impaired renal or hepatic function.

**Adverse Reactions:** Dizziness, drowsiness, lightheadedness, staggering, ataxia and falling have occurred, particularly in elderly or debilitated patients. Severe sedation, lethargy, disorientation and coma, probably indicative of drug intolerance or overdosage, have been reported. Also reported: headache, heartburn, upset stomach, nausea, vomiting, diarrhea, constipation, GI pain, nervousness, talkativeness, apprehension, irritability, weakness, palpitations, chest pains, body and joint pains and GU complaints. There have also been rare occurrences of leukopenia, granulocytopenia, sweating, flushes, difficulty in focusing, blurred vision, burning eyes, tinnitus, hypotension, shortness of breath, pruritus, skin rash, dry mouth, bitter taste, excessive salivation, anorexia, euphoria, depression, slurred speech, confusion, restlessness, hallucinations, and elevated SGOT, SGPT, total and direct bilirubins, and alkaline phosphatase, and paradoxical reactions, e.g., excitement, stimulation and hyperactivity.

**Dosage:** Individualize for maximum beneficial effect. Adults: 30 mg usual dosage, 15 mg may suffice in some patients. Elderly or debilitated patients: 15 mg recommended initially until response is determined.

**Supplied:** Capsules containing 15 mg or 30 mg flurazepam HCl.



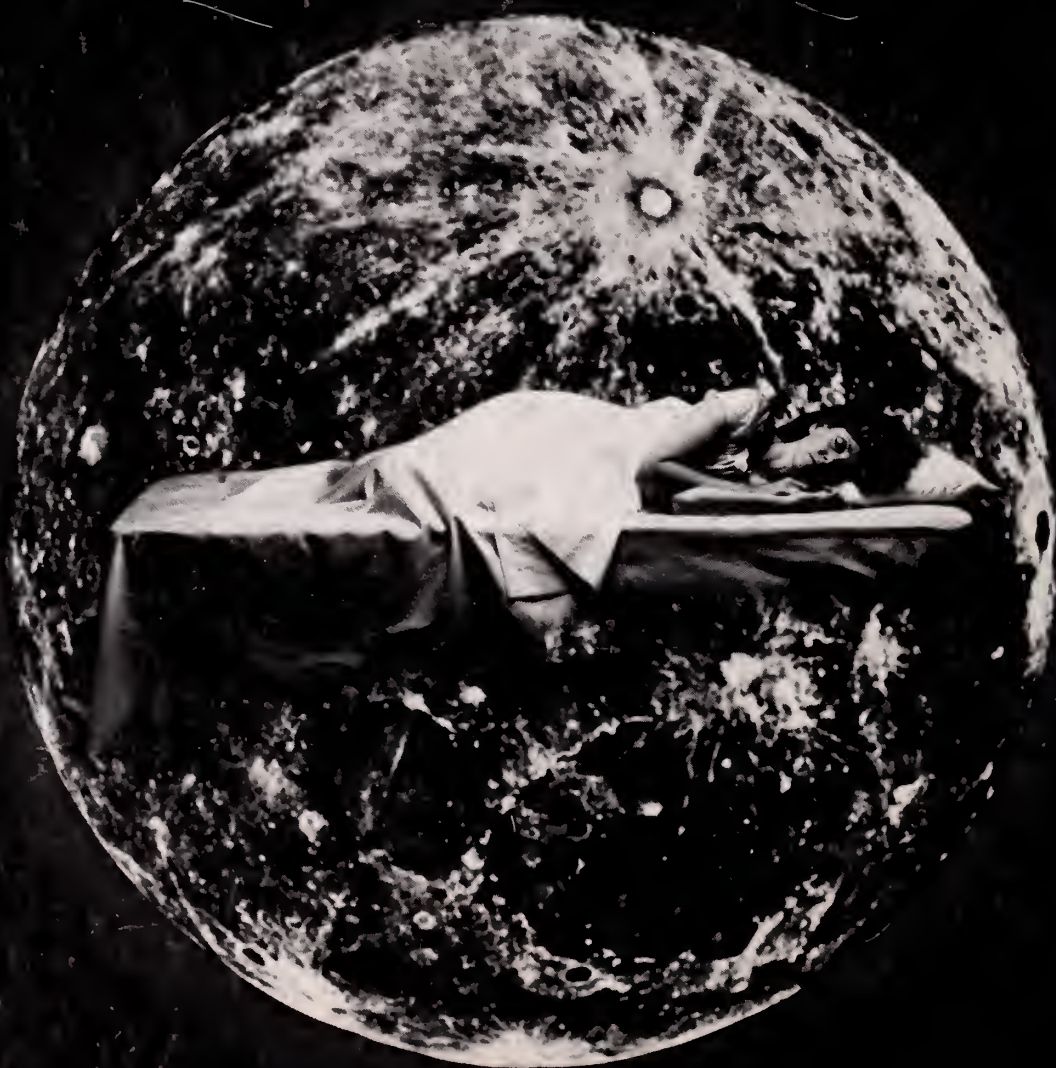
Roche Products Inc.  
Manati, Puerto Rico 00701

# #1 FOR SLEEP

After more than 15 years of use, it's #1 for sleep that satisfies. Patients are satisfied because they fall asleep fast and stay asleep till morning.<sup>1-8</sup> And *you're* satisfied by the exceptionally wide margin of safety.<sup>7-9</sup> As always, caution patients about driving or drinking alcohol.

Please see references and summary of product information on reverse side.

**DALMANE<sup>®</sup>**  
flurazepam HCl/Roche<sup>®</sup>  
**sleep that satisfies**





# JOURNAL

OKLAHOMA STATE MEDICAL ASSOCIATION  
MARCH 1986







# OKLAHOMA CITY CLINIC

Multiple Specialty Clinic

701 Northeast 10th Street • Oklahoma City, Oklahoma 73104 • Telephone - 271-2700

**1-800-522-0224**

## **CARDIOLOGY**

Charles W. Cathey, MD  
Charles W. Robinson, Jr., MD  
Alexander Poston, MD  
Thomas R. Russell, MD  
Paul C. Houk, MD  
Stanley G. Rockson, MD

## **CARDIOVASCULAR- THORACIC SURGERY**

Edward R. Munnell, MD  
R. Nathan Grantham, MD  
Paul J. Kanaly, MD

## **CLINICAL PSYCHOLOGY**

Lucien D. Rose, PhD

## **DERMATOLOGY**

### **Mohs Surgery**

William J. Sahl, Jr., MD  
Michael D. John, MD

## **OTOLARYNGOLOGY**

### **Head & Neck Surgery**

C. Joseph Wine, MD  
Joseph E. Leonard, MD  
Willard B. Moran, Jr., MD

## **ENDOCRINOLOGY — DIABETES**

James L. Males, MD  
Ronald P. Painton, MD  
Jonathan L. Davis, MD

## **GASTROENTEROLOGY**

Malcolm G. Robinson, MD  
David A. Neumann, MD  
Gretchen A. McCoy, MD  
Mark H. Mellow, MD

## **GENERAL SURGERY**

Frank G. Gatchell, MD  
Jay P. Cannon, MD

## **HEMATOLOGY-ONCOLOGY**

Ralph G. Ganick, MD  
Mark E. King, MD

## **AMBULATORY CARE**

Kent C. Hensley, MD  
Leslie A. Arneson, MD  
Richard H. Dykstra, MD

## **INFECTIOUS DISEASES**

Daniel J. Sexton, MD  
Clifford G. Wlodaver, MD

## **INTERNAL MEDICINE**

W.W. Rucks, Jr., MD  
William S. Pugsley, MD  
Donald G. Preuss, MD  
Earl S. Elliott, Jr., MD  
Brian P. Levy, MD

## **OBSTETRICS AND GYNECOLOGY**

John W. Records, MD  
Schales L. Atkinson, MD  
Roger D. Quinn, MD  
Thomas R. Bryant, MD  
Ronald E. Hempling, MD  
Laura L. Mackie, MD  
John D. Dachauer, MD

## **OPHTHALMOLOGY**

James T. Quinlan, MD

## **ORTHOPEDIC SURGERY**

J. Patrick Livingston, MD  
Gene L. Muse, MD

## **PEDIATRICS**

James E. Mays, Jr., MD  
Hal B. Vorse, MD  
William J. Kruse, MD  
Gary D. McGann, MD  
Mickey E. Crittenden, MD

Don L. Wilber, MD  
Charles A. (Tony) Leveridge, MD  
David H. Cheatham, MD

## **PEDIATRIC NEUROLOGY**

Marc Hille, MD

## **PULMONARY DISEASE**

William W. Cook, MD  
Mark S. Fixley, MD  
Steven R. Smith, MD

## **RADIATION THERAPY**

Stephen E. Acker, MD

## **RADIOLOGY**

Melvin C. Hicks, MD  
J. Kent Chesnut, MD  
Alan M. Effron, MD  
Howard G. Daniel, MD  
Robyn L. Birdwell, MD  
Carol V. Sheldon, MD  
Bert R. Carollo, MD

## **RHEUMATOLOGY**

William T. Tatum, Jr., MD

## **UROLOGY**

Donald D. Albers, MD  
William F. Barnes, MD  
Richard E. Herlihy, MD

## **EXECUTIVE DIRECTOR**

A. Wayne Coventon

## **DIABETES MANAGEMENT CENTER**

Patient Education  
by Referral

## **NUTRITION COUNSELING**

Patient Education  
by Referral

Oh, What A Relief It Is...



Only one medical computer system objectively fulfills all these important criteria:

- Written buy-back guarantee
- Software or hardware or total "turnkey" systems available
- Specialized software packages for all specialties and every size of practice
- Total on-site training, support and service
- Lease/purchase available
- Electronic claims
- Integrated word processing
- Collection system

TEXAS  
INSTRUMENTS



**Propdata**  
**medical systems**

One Broadway Center 100 NW 63rd St. Suite 100  
Oklahoma City, OK 73116 (405) 840-0461



# COPPER LAKE MANOR...

## THE ALTERNATIVE



**N**ot all patients need nursing home care. Yet, some patients are not able to fully care for themselves in their own homes.

COPPER LAKE MANOR offers an alternative.

COPPER LAKE MANOR, located at the Village at Copper Lake in Edmond, offers luxurious living for the semi-independent. Your patient will be able to live life to the fullest and still have the security and peace of mind that comes with having full time nursing care available.

### NURSING SERVICES PROVIDED

- Skilled Nursing
- Occupational and Physical Therapy
- Maintenance of Health Files
- Monitoring of Medications
- Speech Therapy
- Health and Fitness Assessments
- Periodic Blood Pressure and Heart Rate Checks
- Health Education Programs

### Other COPPER LAKE MANOR amenities:

- Spacious Efficiency, 1 and 2 Bedroom Apartments
- Complete Meal Service in a Beautiful Dining Area
- Weekly Maid Service
- 24 hour Security and Health Monitoring
- 6 Acre Lake Complete with Fountains, Ducks and a Lighted Walkway
- Transportation
- Beauty Salon
- Much, Much More

*There is an alternative to nursing home care — Copper Lake Manor*  
Models open now — Reserve your apartment today



1300 W. 15th in Edmond  
340-5311

Call for more information or  
come by for a tour today!



## EDITORIAL BOARD

MARK R. JOHNSON, MD  
*Editor-in-Chief*

HARRIS D. RILEY, JR, MD  
*Editor*

ROBERT G. TOMPKINS, MD  
*Editor*

## STAFF

DAVID BICKHAM  
*OSMA Executive Director*

M. MICHAEL SULZYCKI  
*Director of Communications*

SUSAN RECORDS HARRISON  
*Managing Editor*

# JOURNAL

OKLAHOMA STATE MEDICAL ASSOCIATION

MARCH 1986

VOL. 79, No. 3

## EDITORIAL

Funny As In Irrational ..... 151  
MARK R. JOHNSON, MD

President's Page ..... 152  
ELVIN M. AMEN, MD

## SCIENTIFIC

The Use of Real-Time Ultrasound in a Child  
with Spinal Dysraphism ..... 153  
JAY A. HAROLDS, MD; ALMA CODY; LINDA MARSHAK

The Analysis of Matched Studies ..... 155  
WILLIS L. OWEN, PHD; DONALD E. PARKER, PHD;  
ROY B. DEAL, PHD

Nutrition and Its Relationship to Runners ..... 159  
JOHN OWEN, MD

The Noninvasive Vascular Laboratory —  
Part I: Technology (First of Three Parts) ..... 165  
M. ALEX JACOCKS, MD, and THOMAS L. WHITSETT, MD

## NEWS ..... 173

Oklahoma Cancer Institute to open . . . PLICO Loss Prevention Seminars mandatory . . . IAT an AIDS risk . . . Mammography plagued with false negatives . . . Oklahoma Health Center home of new laboratory . . . AMA council produces landmark study on alcohol and driving . . . Beta blocker and tricyclic antidepressant use linked . . . Sex education program successful in Chicago

## DEPARTMENTS

State Department of Health	170	Instructions for Authors	208
In Memoriam	182	Auxiliary	209
Miscellaneous Adv.	184	The Last Word	210
Index to Advertisers	208		

Cover art by  
Graphic Art Center, Oklahoma City

The JOURNAL (ISSN 0030-1876) is the official publication of the Oklahoma State Medical Association and is published monthly under the direction of the OSMA Board of Trustees, 601 Northwest Expressway, Oklahoma City, OK 73118. Printed by the Transcript Press, 222 East Eufaula Street, Norman, OK 73069. Second class postage paid at Oklahoma City, OK 73125.

Subscription to the JOURNAL is included in membership fees. Others subscriptions are \$10.00 per year (\$28.00 foreign). Back issues are \$3.00 per copy, subject to availability, or can be obtained on microfilm from University Microfilms International, 300 North Zeeb Road, Department PR, Ann Arbor, MI 48106.

The JOURNAL does not assume responsibility for opinions expressed by the authors. Products and services advertised in the JOURNAL are neither endorsed nor warranted by the Oklahoma State Medical Association.

Copyright © 1986 by the Oklahoma State Medical Association.

POSTMASTERS: Send all change of address notices to 601 Northwest Expressway, Oklahoma City, OK 73118.

The JOURNAL of the Oklahoma State Medical Association (USPS 285-000)

---

# AMERICAN MEDICAL INTERNATIONAL'S PHYSICIAN PLACEMENT SERVICE

---

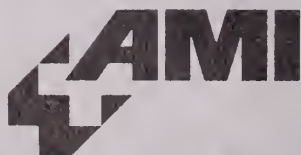
*American Medical International* has instituted a corporate service to assist Physicians interested in solo or group practice opportunities servicing AMI hospitals. Current opportunities are available for physicians who are Board Certified or Eligible. Some specific areas of interest are:

- Family Practice
- Neurology
- Ophthalmology
- Orthopedics
- Gastroenterology
- ENT
- Oncology
- General Surgery
- Neurosurgery
- Orthopedic Surgery
- Industrial Medicine
- Cardiology
- Rheumatology
- OB/GYN

Physicians interested in pursuing opportunities with AMI should contact this service by calling or submitting a curriculum vitae to:

Norman Penick  
Vice President  
Human Resources  
AMI

9465 Wilshire Blvd., Ste. 915  
Beverly Hills, CA 90212  
(213) 858-6927  
National (800) 533-7013  
California (800) 325-4881



Coming soon from  
Burroughs Wellcome Co. Research

# WELLBUTRIN<sup>®</sup>

(Bupropion HCl)



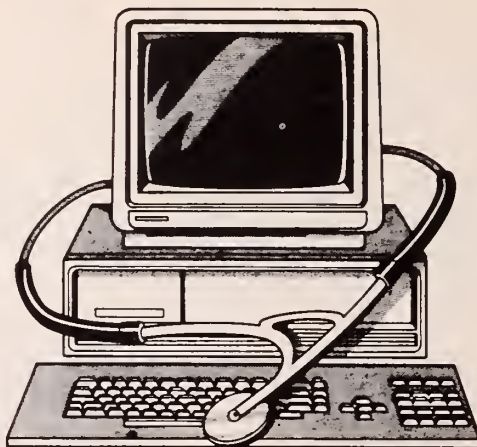
Wellcome



# MANAGE YOUR OFFICE MORE EFFECTIVELY WITH THE MPM 1000 SYSTEM AVAILABLE THROUGH SOUTHERN MEDICAL ASSOCIATIONS PHYSICIANS' PURCHASING PROGRAM

Manage your office more effectively with the MPM 1000 System available through the Physicians' Purchasing Program.

Managing your office shouldn't be hard; however, with the current insurance requirements and



the impending Medicare changes looming on the horizon, it will get more difficult. You should call Curtis 1000 Information Systems or Southern Medical Association to find out how the MPM 1000 can help make your practice run more effectively.

## AVAILABLE ON IBM A/T

### MPM 1000 Simplifies Your Paperwork

You will be able to reduce the mountains of paperwork by using your MPM 1000 system to process all your insurance, complete your billing plus instantaneously sort and file necessary information.

### MPM 1000 Speeds Up Your Cash Flow

The MPM 1000 system will increase your daily bank deposits by processing all your insurance and patients' receivables quickly.

### MPM 1000 Improves Your Practice Management

With the MPM 1000 system you can easily and intelligently manage your practice with computer generated reports. Trends and problems are easily identified so you can take corrective action before they become serious.

### MPM 1000 Is A One Source Solution

The MPM 1000 is a one source solution. With your system you receive all hardware (IBM or Texas Instruments), software, complete five day training program and responsive after sale support.

### IBM PC/AT At Discount

Best of all, these systems are available through SMA Services, Inc., Physicians' Purchasing Program with substantial discounts on IBM and Texas Instrument equipment.

**FOR MORE INFORMATION**, please fill out the coupon below and mail it to Southern Medical Association, or for faster service call Southern Medical at (205) 945-1840 or Curtis 1000 Information Systems at 800-241-4780.

☐ **YES!** I would like more information on MPM 1000

My interests are: ☐ Immediate ☐ Long term ☐ Please contact me for a survey

I am a member of SMA ☐

Name (Please Print)

Address

City

State

Zip

( )

Specialty

Office Phone

Mail to: CURTIS 1000 INFORMATION SYSTEMS  
2296 Henderson Mill Road  
Suite 402  
Atlanta, Georgia 30345



YEARS

Thank you for your loyal support

**DYAZIDE®**

25 mg Hydrochlorothiazide/50 mg Triamterene/SKF

**SK&F CO.**



# Motrin<sup>®</sup> 800 TABLETS mg

ibuprofen

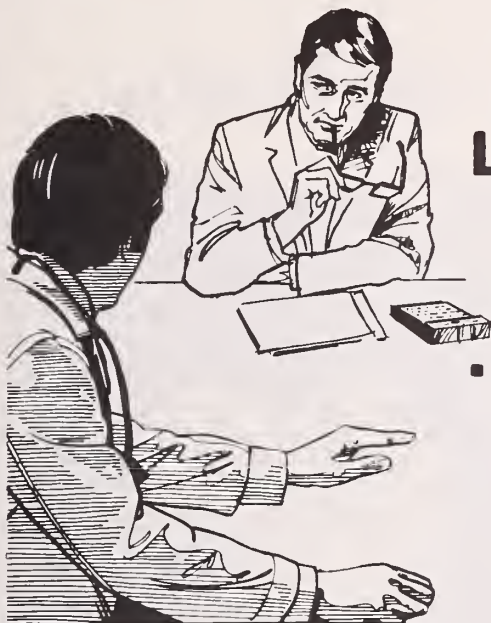


Extra strength  
Convenience  
Economy



A Century  
of Caring  
1886-1986





## Let's talk about your commitment ... and ours.

***You have made  
a commitment  
we understand.***

Your personal commitment to provide the best possible medical care is your foundation for those you serve.

The long years of preparation, education, working hours, and attentiveness, are behind . . . and ahead of you.

You are at home with medical decisions and thinking clearly during critical times. You deserve to be served by folks who make the same professional commitments in their field as you in your own.

Your own financial planning is now more important than ever. You know that government regulation, insurance costs, insurance payment controls, and the general expenses related to operating your practice changes everyday.

Today, a sound financial plan, backed by a financial institution with a solid commitment to the medical industry, positions you to accomplish your goals.

Whether you are starting your practice, expanding it, buying equipment, a home, or any other financial consideration, our commitment is to present you with a package of financial alternatives you will be pleased with.

Your commitment is important to us. Your financial needs are important as well. We are anxious to discuss your needs now.

Call anytime. We are committed to serve Oklahoma Medical Professionals.

*Stillwater National Bank business and real estate loans:*

**SIXTH & MAIN, STILLWATER, OK 74074 ..... (405) 372-2230**

**1616 E. 19TH, SUITE 203, EDMOND, OK 73034 ..... (405) 340-1810**

**ELMCREST PARK OFFICE, 2700 E. 51st, SUITE 402, TULSA, OK 74105 (918) 742-8076**

**(405) 372-2230**



**STILLWATER NATIONAL BANK AND TRUST COMPANY**

**MEMBER F.D.I.C.**

**SIXTH AND MAIN • STILLWATER, OKLAHOMA**

# She wants to go home . . .



## And she can with Allied Nursing Care.

You demand quality service for your patients and Allied Nursing Care provides the best care, anywhere in Oklahoma.

We are prepared to meet your needs for high quality home health care with a full range of services. Our health care professionals follow your treatment plans for continuity of care. You can depend on accurate documentation and communication regarding your patient's progress.

Allied Nursing Care is ready to serve . . . when she wants to go home.



5001 N. Pennsylvania Ave.  
Suite 101  
Oklahoma City, Oklahoma 73112  
(405) 848-1234

## Funny As In Irrational

Funny thing about punitive damages, speaking only as a physician, of course. They are damages inflicted on a culpable entity I assume, by an instrument of our government which, under the constitution as I understand it, is the only authority which can inflict punishment on a citizen in this country. The funny thing is that when the damages intended as punishment take the form of money, the government is not the recipient of the sum determined to represent appropriate punishment.

It seems to me only rational that the punishing authority should be the exclusive beneficiary of monies paid in the name of punishment.

There must be a philosophical distinction between punitive damages and fines, but I'm sure I would have difficulty accepting the distinction. The only difference I can see is that punitive damages are collected by order of a court and paid to the people who persuaded the court to punish some person or business, whereas fines are collected by order of a court and paid to all the citizens of its jurisdiction.

I guess the distinction has been made solely and irrationally as a means to make it possible for the persuaders to become the exclusive beneficiaries of all sums collected in the name of punitive damages.

I'm in favor of calling punitive damages "fines," and seeing to it that the people who empower a court to inflict punishment and collect damages be the only

recipients of monies so designated. Such a change in nomenclatures seems appropriate and thoroughly rational.

There's also a funny thing about sums of money paid for pain and suffering. Very emphatically I understand and favor the effort to compensate with monetary payments an injured person for the pain and suffering inflicted by the injury. However, I find it impossible to understand or favor the right of any individual other than the injured person to share, thus diminish, the sums paid in compensation for pain and suffering. Courts should mandate that no claims can be made upon or paid from the amounts it awards in restitution for pain and suffering. If courts are not so empowered presently, they should be. For an injured person to be forced to share such payments is to inflict more pain and suffering upon that person, which all seems quite irrational to me.

Although nothing says that laws have to be rational, there is also no law which says they must be irrational.

Maybe someday soon the demand for rational laws will be sufficient to force our lawmakers to eliminate or change the irrational ones. That someday is already not soon enough.

—MRJ



---

## PRESIDENT'S PAGE

**O**klahomans Against Lawsuit Abuse" have joined together and are campaigning for a "Return to Reason." At least sixty business, professional, and trade organizations have formed a coalition to encourage tort reform legislation during the 1986 session of the Oklahoma Legislature.



The bill introduced in the House is HB 1892 and in the Senate is SB 536. This highly important piece of legislation will protect not only business and professional individuals, but also individual home and property owners and others from outrageous claims, lawsuits, and judgments.

For many years we physicians felt that we were the only ones being subjected to abusive charges and

exorbitant claims. Now we learn that all of society has been subjected to the same type of abuse.

We must work with our friends to bring an end to "lawsuit abuse." We must personally contact our own legislators. We must pledge support to friendly officials and protect them from abusive opponents.

We must support our friends with both words and money. We must continue to

GET INVOLVED — PARTICIPATE.

Sincerely,

*Elvin M. Amen, M.D.*

# The Use of Real-Time Ultrasound in a Child with Spinal Dysraphism

JAY A. HAROLDS, MD; ALMA CODY; LINDA MARSHAK

**The use of real-time ultrasound in the evaluation of a patient with spinal dysraphism is described.**

**T**he use of real-time ultrasound in examining a child with spinal dysraphism is new to Oklahoma. In this article, we will present our experience with one patient and review the literature on this subject.

A three-day-old girl with a mass posterior to the sacrum was studied in the neonatal intensive care unit with an ATL real-time instrument using a 7.5-MHz transducer. Longitudinal and transverse images showed an anechoic mass measuring 1.5 cm × 2.5 cm in size (Fig 1A and 1B). This mass was continuous with the spinal canal. No evidence of lipoma was seen. Ultrasound and computerized tomography (CT) scans of the head appeared normal. Ultrasound of the kidneys showed no hydronephrosis or other abnormality. At surgery, the mass discovered was cystic except for neural elements, described as being smaller than the size of the tip of one's fifth digit, on the inside of the wall of the mass. Therefore, this was a meningocele.

In a classic article on this subject, Naidich et al used articulated-arm, B-mode sonography.<sup>1</sup> They felt that these images were superior to those obtained with a real-time device. In their opinion, the greater length of cord and spinal column per picture obtained

with the articulated-arm scanner resulted in better resolution. This allowed a more confident evaluation of the abnormalities.

However, the real-time study does have the advantage that damping of cord pulsations can be evaluated.<sup>2,3</sup> This can be seen with a tethered cord. Also, a real-time instrument is portable, while the articulated B-mode instruments are not. Many hospitals now have only real-time units because of their greater versatility. Kangaroo et al state that the longitudinal images give the greatest information about the cord, but that transverse scanning is best for finding osteochondral abnormalities.<sup>4</sup>

In a simple meningocele, one expects to see a cystic mass continuous with the spinal canal. Lipomas and teratomas are echogenic, although they may have cystic spaces. In the Naidich article, ultrasound demonstrated extension of the spinal cord or filum terminale into the meningocele in seven of ten patients.<sup>1</sup> Miller et al<sup>2</sup> state that when "neuronal elements are incorporated into the wall of the meningocele, [this] precludes their absolute identification by ultrasound."

In patients with a delicate tissue over the mass, a water bath can be used to facilitate ultrasound imaging. In older children, it is recommended that the lower body be flexed and be lower than the head for optimum evaluation. Screening children at high risk for occult spinal dysraphism has been suggested.

Another aspect of the sonographic examination

Direct correspondence to Jay A. Harolds, MD, Chief, Nuclear Medicine and Ultrasound, Department of Radiology, Baptist Medical Center, 3300 Northwest Expressway, Oklahoma City, Oklahoma 73112.

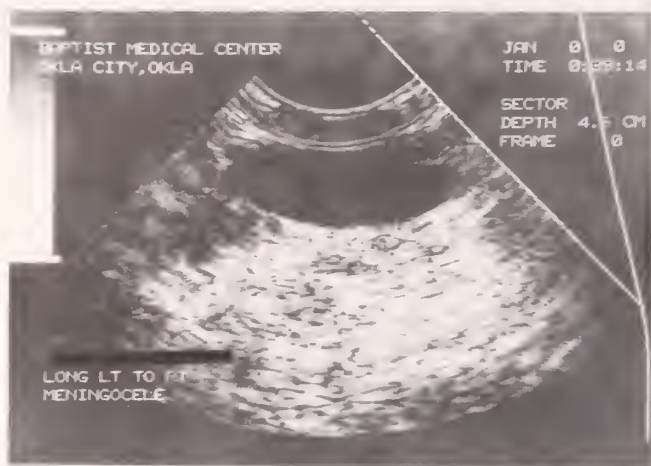


Fig 1A. — Longitudinal image showing anechoic mass

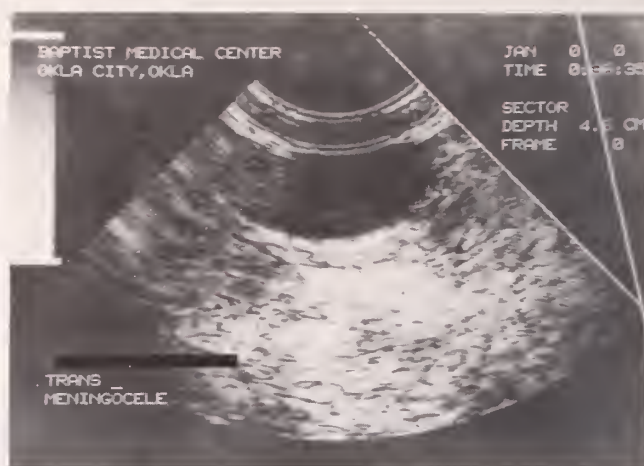


Fig 1B. — Transverse image showing anechoic mass

of the child with meningocele is the examination of the brain. Hydrocephalus, asymmetry of the lateral ventricles, partial absence of the septum pellucidum, and low positioning of the tentorium on the coronal view are some of the common findings associated with this pathology.<sup>5</sup> Arnold-Chiari malformation may be present in some instances.

Serial ultrasound examinations, rather than CT, can be utilized to evaluate hydrocephalus and shunt function. In infants, ultrasound imaging of the spine has an advantage over CT in that transverse and longitudinal images can be directly obtained. Also, an ultrasound examination does not require sedation, has no ionizing radiation, is relatively inexpensive, and can be completed with a portable unit. These advantages seem to favor ultrasound over CT for these evaluations. In addition, the kidneys may be scanned by ultrasound to detect hydronephrosis.

After the age of 10 to 12 months, the maturation of the normal spine will cause interference in ultrasound imaging. However, ultrasound imaging of the spine has been recommended for symptomatic patients following laminectomy for an intrinsic mass in the spinal cord.<sup>6</sup> Intraoperative ultrasound imaging of the spine can also be helpful in certain cases.<sup>7</sup> Ultrasound scanning can also be helpful in evaluating the patient with anterior sacral meningocele.<sup>8</sup>

In conclusion, we believe that for the child with spinal dysraphism, ultrasound examination is an indispensable diagnostic technique. □

**Acknowledgment:** We thank Barbara Benton for typing this manuscript.

## References

1. Naidich TP, Fernbach S, McLone DG, Shkoinik A: Sonography of the caudal spine and back: Congenital anomalies in children. *AJNR*, 5 (May/June 1984), 221-234.
2. Miller JH, Reid BS, Kemberling CR: Utilization of ultrasound in the evaluation of spinal dysraphism in children. *Radiology*, 143 (June 1982), 737-740.
3. Scheible W, James HE, Leopold GR, Hilton SW: Occult spinal dysraphism in infants: Screening with high-resolution real-time ultrasound. *Radiology*, 146 (March 1983), 743-746.
4. Kangaroo H, Gold RH, Diamant MJ, et al: High-resolution spinal sonography in infants. *AJR*, 142 (June 1984), 1243-1247.
5. Babcock DS, Han BK: Cranial sonographic findings in meningocele. *AJR*, 136 (March 1981), 563-569.
6. Braun IF, Raghavendra NB, Kricheff II: Spinal cord imaging using real-time high-resolution ultrasound. *Radiology*, 147 (May 1983), 459-465.
7. Streight RA, Harolds JA: Intraoperative ultrasound. *Journal of the Oklahoma State Medical Association*, 78 (1985), 8-11.
8. McCreath GT, Macpherson P: Sonography in the diagnosis and management of anterior sacral meningocele. *Journal of Clinical Ultrasound*, 8(2): 133-137, 1980.

*Jay A. Harolds, MD, is director of radiology residency training and head of the ultrasound and nuclear medicine departments at Oklahoma City's Baptist Medical Center. He is board certified in nuclear medicine, diagnostic radiology, and diagnostic radiology with special competence in nuclear radiology. He is also visiting assistant professor at the University of Minnesota, adjunct faculty member at Rose State College and the University of Oklahoma, and is a member of the advisory committee for the baccalaureate program in ultrasound technology at OU. Dr Harolds is a 1971 graduate of the State University of New York at Buffalo School of Medicine.*

*Alma Cody, BSRT, earned her degree (Bachelor of Science in Radiologic Technology, ultrasound) at the University of Oklahoma in 1985. She is currently a student in the baccalaureate program in ultrasound at the OU Health Sciences Center.*

*Linda Marshak, BSRT, RDMS, earned her bachelor of science degree in ultrasound at the University of Oklahoma. Her RDMS (Registered Diagnostic Medical Sonographer) was earned at Kellogg Community College. She has been working at Baptist Medical Center in Oklahoma City for four years performing ultrasound examinations.*



# The Analysis of Matched Studies

WILLIS L. OWEN, PhD; DONALD E. PARKER, PhD; ROY B. DEAL, PhD

**Methods of analysis of data from case-control studies in which controls are matched to cases are examined. If there are differences among blocks with respect to the characteristic being studied, then the McNemar test is more powerful and maintains the level of the test better than the usual chi-square test. This conclusion is supported both by statistical theory and by computer simulation.**

During the course of various statistical consultations, we have had occasion to use, or to discuss with other investigators the use of, the McNemar test. As a result, we have come to believe that this test is frequently used when it is not appropriate and, more importantly, not used when it is appropriate.

The most common instance in which this test might be useful in epidemiology is the case-control study in which cases and controls are matched on one or more variables such as age, sex, race, hospital, income, or education. A typical data layout for this instance is illustrated in Table 1. Note that the entries in the table represent case-control pairs and not individuals. That is,  $a$  represents the number of pairs for which both the case and the matched control have the characteristic, and  $b$  represents the number of pairs for which the case has the characteristic. The quantities  $c$  and  $d$  are defined similarly.

It should be pointed out that this type of layout would also be appropriate for studies in which each

subject acts as his or her own control. Such design occurs more frequently in psychology or education than in epidemiology; however some intervention or treatment studies fall into this category.

Examples of studies with matched cases and controls are frequently reported in the literature. Moreover, it sometimes occurs that case-control matching is frequently ignored in the analysis of such data. Our primary point in this paper is that a more powerful analysis can usually be obtained by using methods in which matching is taken into account.

In order to simplify the discussion, let us adopt the following notation. Let  $\Pi_{11}$  denote the probability that both the case and the matched control have the characteristic. Let  $\Pi_{12}$  denote the probability that the cases has the characteristic and the control does not. Let  $\Pi_{21}$  denote the probability that the case does not have the characteristic but the control does. Finally let  $\Pi_{22}$  denote the probability that neither the case nor the matched control has the characteristic. Let  $\rho_1$ ,  $\rho_2$ ,  $\gamma_1$ , and  $\gamma_2$  denote, respectively, the probabilities that the cases have the characteristic, the cases do not have the characteristic, the controls have the characteristic, and the controls do not have the characteristic. Note that,  $\rho_1 = \Pi_{11} + \Pi_{12}$ ,  $\rho_2 = \Pi_{21} + \Pi_{22}$ ,  $\gamma_1 = \Pi_{11} + \Pi_{21}$  and  $\gamma_2 = \Pi_{12} + \Pi_{22}$ .

In fact, a careful reading of virtually any discussion of the McNemar test will show that hypothesis  $H_0$ :  $\rho_1 = \gamma_1$  is what is actually being tested by the McNemar test.<sup>1,2</sup> Some texts state the null hypothesis as  $\Pi_{12} = \Pi_{21}$ . This statement of the null hypothesis is clearly equivalent to  $H_0$ . Put into words, the

From the Department of Biostatistics and Epidemiology, University of Oklahoma Health Sciences Center, Oklahoma City, Oklahoma.

Address correspondence to Willis L. Owen, PhD, Associate Professor, Department of Biostatistics and Epidemiology, College of Public Health, University of Oklahoma Health Sciences Center, PO Box 26901, Oklahoma City, Oklahoma 73190, (405) 271-2229.

McNemar tests the null hypothesis that the proportion of cases with the characteristic is the same as the proportion of controls with the characteristic.

Frequently, one finds data from a study of cases and matched controls analyzed by casting the data into a  $2 \times 2$  table similar to Table 2 and applying the ordinary chi-square test.

Note that Table 2 is related to Table 1 by the equations  $A = a + b$ ,  $C = a + c$ ,  $D = b + d$ . Note also that the entries in Table 2 represent individuals while the entries in Table 1 represent pairs. Thus  $A + B + C + D$  is twice  $a + b + c + d$ .

The McNemar test applied to the data cast as in Table 1 or the chi-square test applied to the data cast as in Table 2 both test the null hypothesis  $H_0$ . That is, they both test whether the proportion of cases with the characteristic is equal to the proportion of controls with the characteristic. From the point of view of statistical theory, these two tests would never both be considered for use in any given situation. That is, if the cases and controls are sampled in a matched fashion, then the only appropriate test is the McNemar since this test takes the matched sampling into account. Similarly, if the cast and controls are obtained as independent samples, then the ordinary chi-square run on Table 2 is the appropriate test. However, the problem which we wish to consider is the following:

If a researcher conducts a study involving a matched sample and then, either by mistake or on purpose, chooses to analyze the data as independent samples using the chi-square test on Table 2, what is the effect of this choice? In order to answer this question we will examine the level and the power of both the McNemar and the chi-square tests. If a McNemar test is run on the data in Table 1, then the statistics  $M = (b - c)^2 / (b + c)$  is calculated and compared with the tabulated values of the chi-square distribution with one degree of freedom. The usual chi-square statistic,  $\chi^2$ , applied to Table 2 is also dis-

tributed as a chi-square variable with one degree of freedom.

First let us consider power. Assume that the null hypothesis is false and that the data in Table 1 exactly reflect the true state of nature. Since  $\chi^2$  and  $M$  are both distributed as a chi-square variable with one degree of freedom, the more powerful test is the one with the larger test statistic. It is easy to show that if there are  $n$  cases and  $n$  controls then  $\chi^2 = M\{(2n)(b + c)/[(b + c + 2a)(b + c + 2d)]\}$ . Thus  $\chi^2$  will yield a more powerful test when the population values are such that the multiplier of  $M$  is greater than 1 and conversely, the McNemar test will be more powerful when this quantity is less than 1. Simple calculations show that this quantity is greater than 1 if and only if  $(b - c)^2 / 4n > (ad - bc)/n$ . The quantity on the right of this inequality is the covariance between the cases and controls with regard to whether they possess the characteristic. Thus the conclusion is that the  $\chi^2$  is a better test if the covariance between cases and controls is "small" and the McNemar is a better test if the covariance is "large." We will return to this point after our discussion of the level of the test.

In order to discuss the level of the test let us consider how the samples are obtained. By deciding on the matching variables, we divide the population into blocks. For example, if we match on age (young versus old), race (white versus nonwhite), and sex, this divides the population into  $2 \times 2 \times 2 = 8$  blocks. Each case is matched with a control from the same block; thus a young-white-male case is matched with a young-white-male control. Suppose now, that there are  $k$  blocks and let  $\rho_1$  be the probability that a case in block 1 has the characteristic of interest. Define  $\rho_1, \dots, \rho_k$  in a like fashion. The null hypothesis we wish to test is that there is no difference in cases and controls with respect to the characteristic. If this null hypothesis is true, then  $\rho_1, \dots, \rho_k$  are the probabilities that a control will have the characteristic

Table 1  
Typical Data Layout in a Fourfold Table  
Suitable for a McNemar Test

		Control has Characteristic	
		Yes	No
Case Has Characteristic	Yes	a	b
	No	c	d
Total		n	

Table 2  
Typical Data Layout in a Fourfold Table  
for Analysis Using Chi-Square

	Characteristic Present	
	Yes	No
Cases	A	B
Controls	C	D
Total	2n	



in each of the blocks 1, . . . ,  $k$  respectively. Suppose that the data obtained are cast as in Table 2 and tested using the  $\chi^2$  statistic. Since the data were obtained by a form of stratified sampling, it can be shown that the denominator of the  $\chi^2$  statistic is larger than it should be. The difference between the denominator of the  $\chi^2$  statistic and the correct denominator which takes the matching procedure into account is

$$\Delta = 2 \sum_{i=1}^k w_i (\rho_i - \rho)^2 / n,$$

where  $w_i$  is the proportion of the sample in the  $i^{\text{th}}$  block and  $\rho = \sum w_i \rho_i$  is the weighted average of the  $\rho_i$ . Since the denominator of the  $\chi^2$  statistic is too large, this statistic is too small. That is, the  $\chi^2$  statistic will fail to exceed the critical value by chance alone fewer times than the level of the test would indicate. For example, if we believe we are testing at the  $\alpha = .05$  level, we may be operating at levels of .04, .03, or lower. Thus, if we use the  $\chi^2$  statistics on Table 2 we are operating at a conservative but unknown  $\alpha$ -level. The fact that  $\alpha$  is unknown is an obvious disadvantage.

It can be shown that the quantity  $\Delta$  is proportional to the covariance between the cases and controls with respect to possession of the characteristic. Thus if the cases and controls are highly correlated, the  $\chi^2$  statistic applied to Table 2 has less power than the McNemar if the null hypothesis is false and suffers from a defect in the  $\alpha$ -level if the null hypothesis is true.

In order to get an applied interpretation of this result, let us examine the quantity  $\Delta$ . Recall that  $\rho_i$  represents the proportions of individuals having the characteristic. Thus  $\Delta$  will be large if there are large differences among blocks for the rates of having the characteristic. It is these rates of having the characteristic that should be examined when deciding be-

tween the chi-square and McNemar tests. Put simply, if the rates of having the characteristic differ among the blocks, then the McNemar test has higher power and more appropriate  $\alpha$ -level than does the chi-square test.

After completing our mathematical examination of these two tests, we felt that we would like to do a computer simulation in order to assess the magnitude of the differences in  $\alpha$ -level and power for these two tests. Unfortunately, limitations on funds and computer time precluded any full-scale simulation. However, it was possible to simulate 500 case-control studies at each of three sample sizes for one instance in which the null hypothesis is true and one instance in which it is false.

Table 3 gives computed  $\alpha$ -levels for the instance in which the null hypothesis is true. For these computations, two blocks were assumed. Each block contained half the diseased population. The overall conditional probability that a case would have the characteristic was fixed at .4. This value was chosen because it is known<sup>3</sup> that if this probability is near .5, the  $\alpha$ -level of the chi-square test is maximized. The conditional probability of having the characteristic given the disease was .6 in one block and .2 in the other.

Two things can be observed from this table. First, when the continuity correction is used, the  $\alpha$ -levels are always smaller than the corresponding uncorrected value. This agrees with the previous work of Costiloe.<sup>3</sup> Second, only the uncorrected McNemar test consistently comes close to the nominal level. The fact that the McNemar exceeds the .05 level is due to sampling variation and to the choice of parameters at which the test was run. Note that different choices of parameters will give different values for  $\alpha$ -levels. Even so, it should be noted that case-control studies are generally exploratory rather than confirmatory in nature, and thus a liberal  $\alpha$ -level is desirable.

**Table 3**  
Proportions of Tests Incorrectly Rejecting the Null Hypothesis ( $\alpha$ -Level) for Three Sample Sizes When the Nominal Test Level was .05

n	Chi-Square Test		McNemar Test	
	Corrected	Not Corrected	Corrected	Not Corrected
50	.008	.036	.030	.052
100	.026	.034	.038	.056
300	.032	.044	.052	.062

**Table 4**  
Proportions of Tests Correctly Rejecting the Null Hypothesis (Power) for Three Sample Sizes When the Nominal Test Level was .05


n	Chi-Square		McNemar	
	Corrected	Not Corrected	Corrected	Not Corrected
50	.264	.338	.300	.408
100	.582	.640	.636	.690
300	.982	.986	.994	.994



Table 4 gives calculated power for three sample sizes. In these calculations two blocks were used, each with half the disease population. As in Table 3, the conditional probability of a case having the characteristic was set at .4. The overall proportion of controls having the characteristic was determined by requiring that the cross product estimate of the relative risk be 2. This requirement led to a conditional probability of a control having the characteristic of .33. In the first block the conditional probability that a case would have the characteristic was .6; this probability was .2 in the second block. For controls the corresponding conditional probabilities were .4 and .135.

From Table 4 it is easy to see that corrected tests were always less powerful than uncorrected tests and that the McNemar test gave more power. Note that, at least for the parameters chosen for Table 4, sample size is a very important factor; for this instance, no practical difference in power existed when we had 300 cases and 300 controls.

In summary, we have found that theory predicts that the McNemar test will have a more appropriate  $\alpha$ -level and more power than the chi-square test for

studies involving matched cases and controls. Calculations reported in Table 3 and Table 4 give an idea of the magnitudes of these predicted differences in one particular instance. 

## References

1. Siegel S: *Nonparametric Statistics for the Behavioral Sciences*. McGraw-Hill, New York, 1956.
2. Sokal RR, Rohlf FJ: *Biometry*. W. H. Freeman and Co., San Francisco, 1969.
3. Costiloe JP: *On Tests of the Difference Between Two Populations When the Sample Size is Small*. PhD dissertation, University of Oklahoma, 1974.

*Willis L. Owen, PhD, is an associate professor of biostatistics and epidemiology at the University of Oklahoma Health Sciences Center. A 1969 graduate of the University of Minnesota, he holds memberships in the American Public Health Association and the American Statistical Association.*

*Donald E. Parker, PhD, a 1970 graduate of the University of Oklahoma, is a professor of biostatistics and epidemiology at the OU Health Sciences Center. He, too, is a member of the American Public Health Association and American Statistical Association.*

*Roy B. Deal, PhD, is a professor emeritus of biostatistics and epidemiology at the OU Health Sciences Center. A member of the American Public Health Association and the American Statistical Association, he was graduated from the university in 1953.*

# Nutrition and Its Relationship to Runners

JOHN OWEN, MD

**This investigation focuses on a subgroup of the exercising population and its dietary needs. The subgroup is runners, who represent a large segment of the population committed to exercise. Running is a popular form of exercise that provides a regular routine, and it is available to a large number of people. This study attempted to determine if runners seek medical advice before they begin running, whether they change their diets as part of their regimen, and from what sources they obtain their dietary advice.**

The past decade has been remarkable for its increase in Americans of all ages attempting to stay fit through exercise. There has been an increase in community-based youth sports programs. Scholastic sports in high school have seen a marked increase in participation by boys and girls. Adults, in particular, have become involved in sports such as running. It has been estimated that 25 million people participate regularly in recreational distance running.<sup>1</sup>

Based upon current trends, an even larger increase in the exercising population is expected in the future. The Los Angeles Olympics are history, but enthusiasm for the Olympics has not abated. Media advertising everywhere encourages people to get in shape through proper exercise and diet. Scientific data emphasize the enhanced quality of life through proper exercise and diet. The recent literature is replete with studies showing that being physically fit helps protect against hypertension and heart disease.

Blair,<sup>2</sup> at the Institute for Aerobics Research in Dallas, found that even after making corrections for weight, family history, smoking, and age, being in poor condition increased the risk of hypertension by 50% to 60%. Paffenberger and his co-workers<sup>3</sup> at Harvard and Stanford collected data on 16,000 Harvard students and found that those who did not stay active after leaving college were far more likely to suffer heart attacks than those who remained or became vigorous.

As people begin to exercise they develop an increased awareness of life-style. They find that smoking, drinking alcohol, or overeating as they once did, is not compatible with exercise. They realize that in order to function more efficiently they must take better care of their bodies. Diet, in particular, becomes an important factor. As noted by Hodges,<sup>4</sup> "First, food is a source of energy needed for training and competition. Second, diet is a critical determinant of body composition, ie, how much one weighs, the degree of fatness or leanness. Third, eating and drinking habits determine one's state of hydration, which is a critical determinant of one's tolerance to heat, efficiency of energy metabolism, and onset of fatigue during competition of long duration. Lastly, eating serves important psychosocial needs for the athlete as it does for all of us." Thus, exercise prompts life-style changes, including dietary alterations.

As exercising individuals become more concerned about their nutritional needs, they seek advice and counsel. The news media is a source upon which many rely. Others may ask a coach or trainer. Some may rely upon physicians. Tinker and Tinker<sup>5</sup> surveyed

Direct correspondence to John Owen, MD, 3425 Hickory Stick, Oklahoma City, Oklahoma 73120.

1. Age \_\_\_\_\_
2. Sex: MALE \_\_\_\_\_ FEMALE \_\_\_\_\_
3. How many hours per week do you exercise? (Circle one)
  - a. 1-5 b. 6-10 c. 11-15 d. 16-20
  - e. greater than 20
4. How many years have you been exercising regularly?
  - a. 1-5 b. 6-10 c. greater than 10
5. Did you receive a physicians advice before you began exercising?  
YES \_\_\_\_\_ NO \_\_\_\_\_
6. How many times last year did being sick or injured cause you to miss running? (Circle one)
  - a. 1 b. 2 c. 3 d. 4
  - e. greater than 4
7. Has exercising influenced you to change your diet?  
YES \_\_\_\_\_ NO \_\_\_\_\_
8. How did you change you diet? (Check all applicable answers)
 

	More	Less
a. Dairy products	_____	_____
b. Meat	_____	_____
c. Vegetables	_____	_____
d. Fruits	_____	_____
9. If a change of diet has occurred circle the source of your dietary information.
 

a. Coach	e. Nutrition Courses
b. Magazines	f. Physician
c. Books	g. Other runners
d. Television	

Fig 1. Questionnaire

the public at large to determine the public's level of nutritional knowledge. They found that the news media was the most frequently cited source of nutritional information. Physicians were cited fifth out of seven possible choices in frequency of use for dietary information.

## Methods

A questionnaire (Fig 1) was placed in a publication, *The Oklahoma Runner*. Approximately 3,000 copies of the magazine were distributed and 370 questionnaires were returned. The questionnaires were printed on self-addressed, postage-paid postcards. They were placed in the November 1984 issue and a deadline of January 1, 1985, was set for return of responses for the study.

## Results

The data obtained from the surveys showed that 79.34% of the runners were men and 20.66% were women. In Figure 2 it can be seen that the majority of the runners were in the 30-39-year-old group. This was true for both men and women. The next largest group was runners 40 to 49 years old, with the third largest category being those 20 to 29 years old. For women there was no difference in the number of runners in the 20-29 and 40-49 categories. The difference in the statistics is due to the greater number of male runners aged 40 to 49 years compared to those aged 20 to 29 years. Toward the extremes in age groups, the numbers tapered off for both men and women.

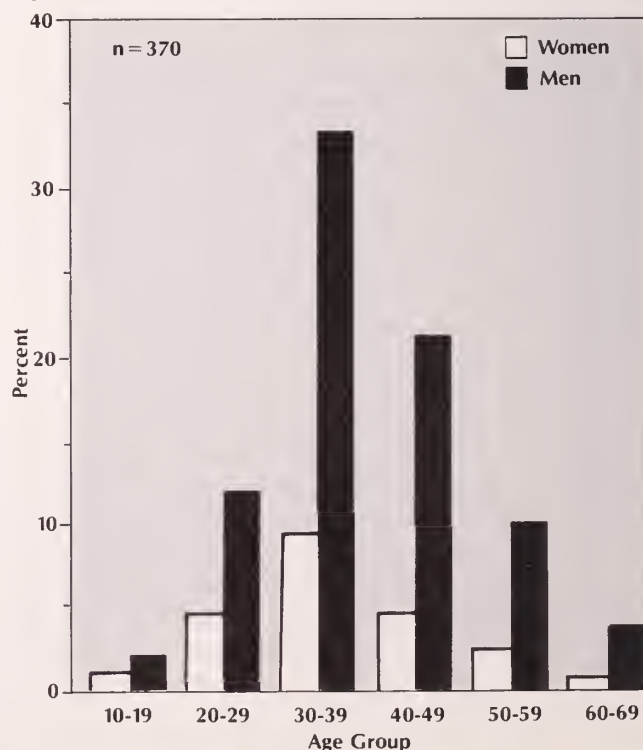
Most study participants, both male and female, had been exercising for from 1 to 5 years (Fig 3). The numbers in the 6-10-year and greater-than-10-year groups were about equal.

The number of hours of weekly exercise was greatest in the 6-10-hours-per week category, falling off

in the other categories (Fig 4). There was no difference between the sexes.

Of the runners in the study, only 18.5% sought a physician's advice before they began to exercise, while 81.5% did not. Whether or not they saw a physician seemed to have made little or no difference in the number of days of exercising they missed due to illness. The majority missed only 1 to 2 days of exercising during the year, with 16.2% having to miss exercising for more than 4 days. Several people wrote on the questionnaire that they did not miss any days due to illness.

Fig 2. — Sex and age groups





Overall, 85% (315 of 370 runners surveyed) made some change in their diets. Figures 5, 6, 7, and 8 show what types of dietary changes were made. A clear majority of the runners began to eat more fruits and vegetables. It is also clear that a majority ate less meat. Dairy products were the only area where no clear pattern of change emerged. A large number of runners consumed fewer dairy products; however, some indicated no change, and a significant number began to consume more dairy products. The general pattern seemed to be to eat more fruits and vegetables while consuming fewer meat and dairy products.

Those runners who changed their diets were asked their sources of dietary information. The majority got their information from magazines, with books and other runners also being sources of information (Fig 9). Physicians were a seldom-used source of information. The "other" category on the chart represents answers written in by respondents. The most prevalent among them was that the runner adjusted his diet according to what he felt his body needed. In other words, the runner "listened to his own body."

In 1984, 240 runners competed in the 10-kilometer division of the Wellness Run sponsored by Saint Anthony Hospital, Oklahoma City. Of these, 81.7% were men and 19.3% were women, corresponding closely to the percentages in this survey (79.4%,

20.6%). The majority of the runners at the Wellness Run were in the 30-39-year-old age group. The next largest group was 20 to 29 years old, and the third largest group was 40 to 49. Thus the distribution of runners in this survey was very similar to that in a group that actually participated in a 10-kilometer run.

The average runner in this survey was a man 30 to 39 years of age. He most likely had begun to exercise within the preceding 5 years and exercised on the average of 6 to 10 hours per week. During the course of his exercise program he decided to change his diet. He did so by adding fruits and vegetables while eating fewer meat and dairy products. He relied heavily on the printed news media for his dietary information. It is also likely that he consulted with other runners for his dietary advice. It is unlikely that he asked a physician for dietary advice.

The fact that the 30-39-year-old age group had the largest number of runners may indicate that this age group is more health conscious than other groups. However, other age groups may be just as health conscious but involved in other sports and thus less likely to read the running magazine that contained the questionnaire.

The majority of the runners had begun to exercise within the last 5 years, consistent with the marked

Fig 3. — Sex and number of years of exercising

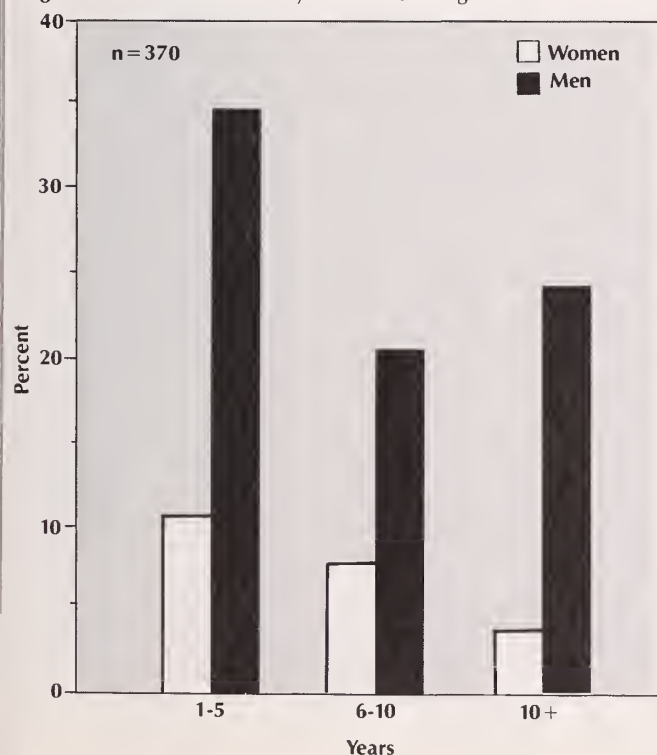


Fig 4. — Hours of exercise per week

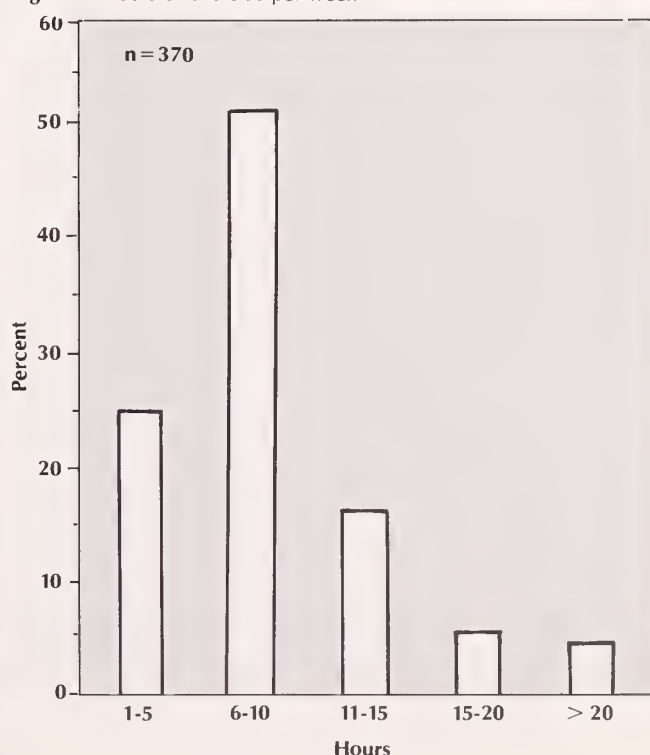


Fig 5. — Use of fruits in diet

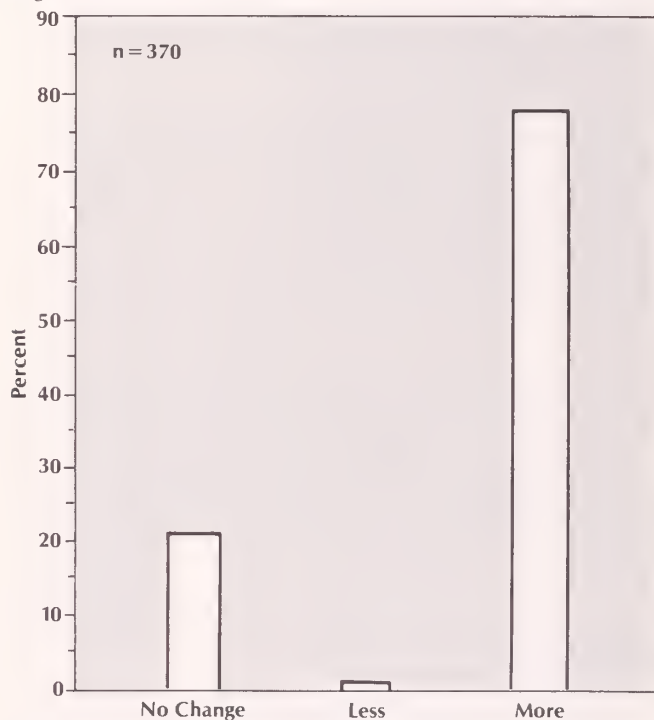


Fig 6. — Use of vegetables in diet

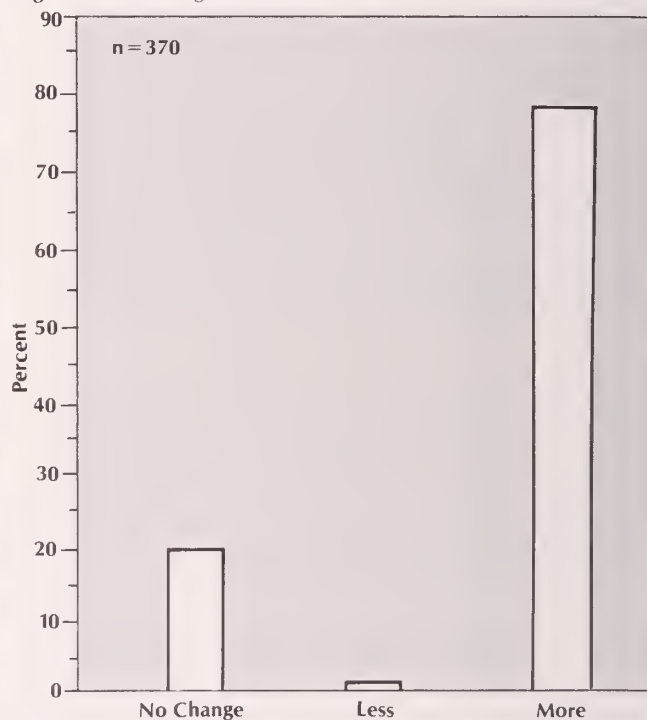


Fig 7. — Use of meat products in diet

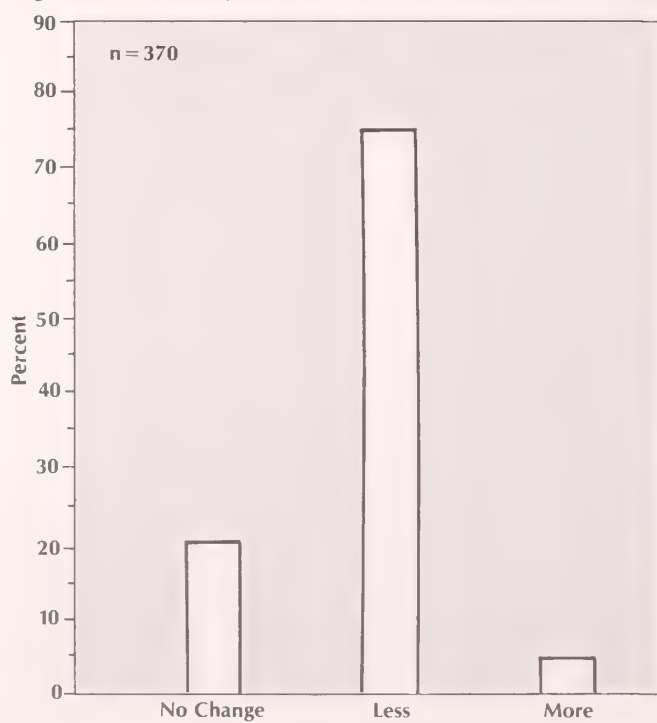
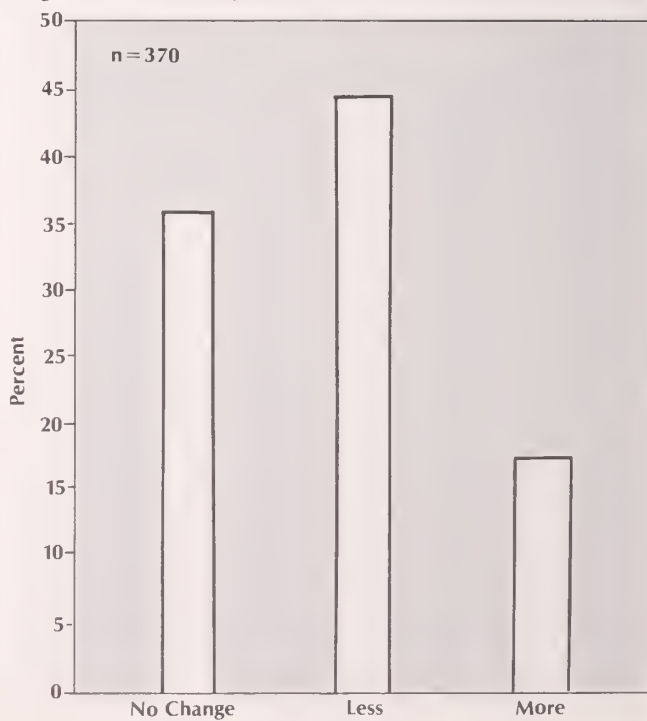


Fig 8. — Use of dairy products in diet



increase in the number of people exercising over the last few years. Almost without exception these runners are not seeking medical advice before beginning their exercise program. In this study, that did not seem to affect the number of days a runner was sick and missed exercising, which was a poorly defined category. The runner himself defined "sick" and made a personal determination of whether he was too ill to exercise. Thus, the information in this portion of the survey was prone to interpretative and subjective differences.

Conclusion

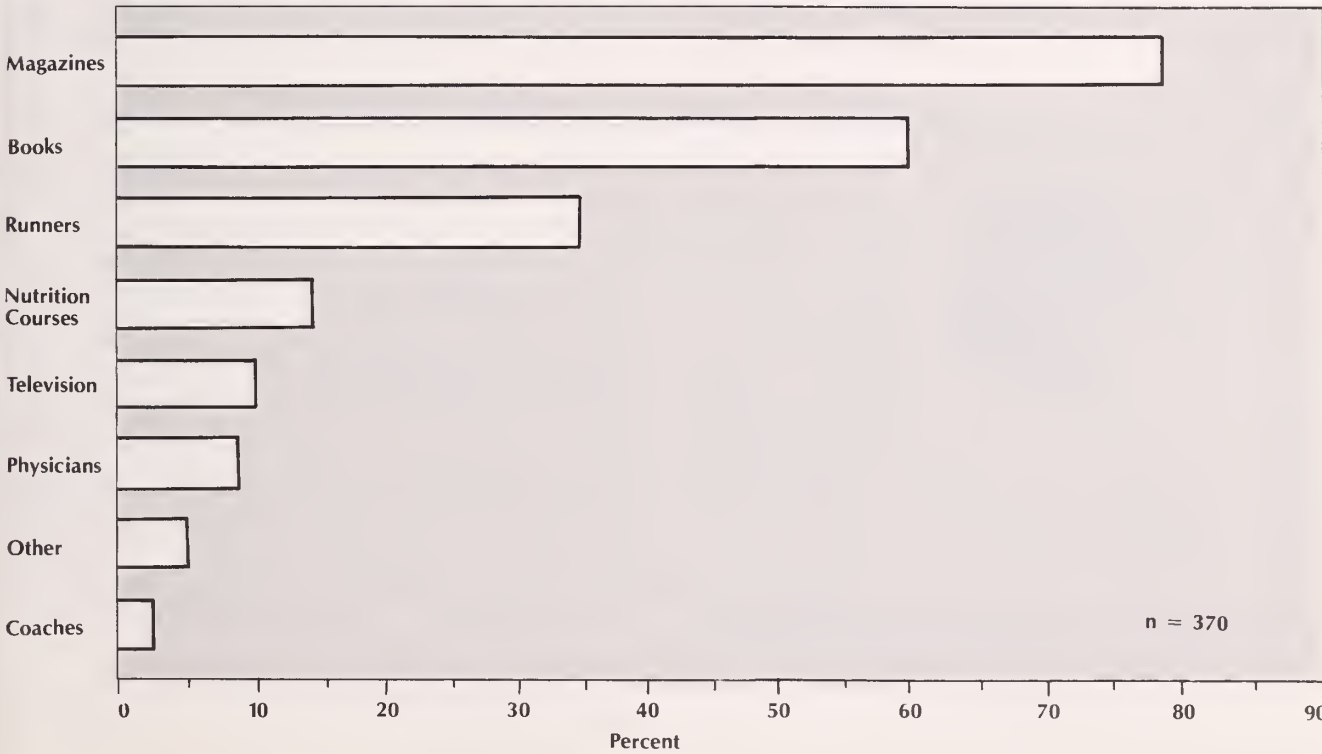
Dietary changes among runners was both predicted and supported by this study. Runners changed their diets after they began to exercise. That our diets should contain less cholesterol and fat is a conclusion of many studies. Thus, these changes — fewer dairy and meat products along with more fruits and vegetables — seem to be for the better. It would be interesting to study these food categories in more detail, to examine the particulars of how much more or less in each category was consumed and to break these four large categories into smaller ones.

When it comes to dietary advice, runners show trends similar to what Tinker and Tinker<sup>5</sup> found in the general public. Runners seem to get most of their dietary advice from the print media — books and magazines. They also rarely rely on a physician for dietary advice.

The implications of this study are many. Runners are highly motivated individuals who through their efforts have proven to themselves and others that they are concerned about fitness. In addition to their exercising, runners are changing their diets to improve their health. However, physicians do not seem to be reaching these people. Physicians may not see runners until they have suffered such problems as orthopedic injuries, cardiac problems, or heat stroke. This seems to be a current problem in medicine. Much of the medical care provided is directed only at the injury itself, not at prevention. Possibly the medical community should become more involved in educating the public on the important health matters of proper exercise technique and nutrition.

Of interest here is the fact that runners get much of their advice from the media. The Tinkers<sup>5</sup> found in their study that much of the information the public

Fig 9. — Sources of dietary information



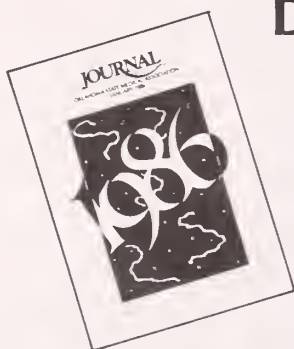


obtains from the media is incorrect. Having the proper information is important to runners because it keeps these highly motivated individuals from being lured to expensive nutritional supplements and "special" foods that are of no exceptional value. Proper information can also prevent the serious complications that can occur during exercise, such as dehydration. For the physician looking to expand his medical practice, nutritional education is an area where he can practice preventive medicine and be of great value to his patients. □

## References

1. Michener JA: *Sports in America*. New York, Random House, Inc., 1976.
2. Blair SN, Cooper KH, Gibbons LW, Goodyear NN, et al: Physical fitness and incidence of hypertension in health normotensive men and women. *JAMA*, 252: 487-490, 1984.
3. Paffenberger RD, Hyde RT, Wing AL, Steinmetz CH, et al: A natural history of athleticism and cardiovascular health. *JAMA* 252; 491-495, 1984.
4. Hodges RE: Nutrition and athletic performance. *Medical Times* 109: 92-107, 1981.
5. Tinker TD, Tinker RA: An analysis of nutritional knowledge in the general public. *Journal of the Oklahoma Medical Association*, 75; 293-397, 1982.

*John A. Owen, MD, is currently an intern in radiology at Baptist Medical Center in Oklahoma City. He wrote this paper as a fourth-year medical student at the University of Oklahoma College of Medicine, where he earned his medical degree in 1985.*



## DON'T TAKE IT FOR GRANTED . . .

If you're a member of the OSMA, you receive the JOURNAL every month without asking; your subscription is included in your dues. Yet there are thousands of people across the state, people genuinely interested in medicine today, who don't even know the JOURNAL exists. Many of them are your friends, your neighbors, your community leaders. With gift subscriptions you can ensure that they, too, receive the JOURNAL every month.

Don't take it for granted; make sure those interested readers have a chance to learn firsthand what's happening in Oklahoma medicine. Give them a subscription to the JOURNAL.

Send their names and addresses with your check for \$10 per U.S. subscription to: OSMA JOURNAL, 601 Northwest Expressway, Oklahoma City, OK 73118.

Do it today. And next month the voice of Oklahoma medicine will be heard in your hometown.

# The Noninvasive Vascular Laboratory

## Part I: Technology

(First of Three Parts)

M. ALEX JACOCKS, MD, and THOMAS L. WHITSETT, MD

**Increasing use of noninvasive vascular testing for evaluation of the arterial, cerebrovascular, and venous systems requires an understanding of the techniques used as well as the type of information obtainable.**

A plethora of material has been produced in recent years regarding the noninvasive vascular laboratory. Volumes have been written and whole new technologic advances have been made. Physicians who do not commonly use the noninvasive laboratory may not be familiar with these recent advances. This series of articles discusses the basic technology used for most noninvasive vascular testing, the resulting physiologic information, and the procedures currently used at the University of Oklahoma Health Sciences Center. This article reviews the basic features of the instruments used and the distinction between the anatomic and physiologic information. The second article will review the clinical application of the noninvasive tests in evaluating patients with peripheral arterial disease, including the cerebrovascular system. The third article will detail the noninvasive evaluation of patients with venous vascular disease, both obstructive venous disease and venous insufficiency.

From the Peripheral Vascular Laboratory, Department of Surgery, University of Oklahoma College of Medicine, Oklahoma City, Oklahoma.

Direct correspondence to M. Alex Jacocks, MD, Assistant Professor, Department of Surgery, University of Oklahoma College of Medicine, PO Box 26307, Oklahoma City, Oklahoma 73126.

### Diagnostic Ultrasound

Medical diagnostic ultrasound is similar to the old sonar — sound frequencies in the 1-10 MHz range are usually used.<sup>1</sup> A transducer emits sound produced by a piezo-electric crystal into a medium (tissue); as the sound wave strikes new tissue interfaces, part of the sound returns to the probe (the amount being dependent on the amount of difference in density and elasticity between the tissue interfaces), part of the sound is converted to heat, and part passes deeper into tissues. How the returning sound wave is processed and displayed determines what is seen and the origin of such terms as A-mode, B-mode, M-mode, gray scale, and real-time. Measuring the shift in frequency of a returning sound wave after it interfaces with a moving object is known as the Doppler effect.

“A-mode” is the abbreviation for amplitude modulation. The strength of the returning echo is displayed as a function of the height of vertical deflections on an oscilloscopic screen. It is the most basic form of display and was the first used. It was used extensively in obstetrics to measure fetal biparietal diameter and in vascular patients to measure the size of aneurysms but is limited due to its single sampling plane.

Brightness modulation, or “B-mode,” displays the returning echo as a dot on an oscilloscope, rather than a spike, and the strength of the returning echo (based on the tissue interface properties) is reflected as degrees of brightness rather than height of a spike.

A movable transducer and a storage oscilloscope allow views of more than one plane, which has greatly enhanced the value of B-mode ultrasonography for obstetrical and vascular use.

"M-mode," or motion mode, allows the pattern of returning echos to drift across the oscilloscopic screen at known rates. Events are photographed with time exposure or using fiber-optic strip-chart recording. M-mode displays are the principal method used in echocardiography.

Gray-scale ultrasonography refers to techniques developed by Kossoff et al<sup>2</sup> that allow greater variation in B-mode ultrasound display. A television scan converter displays brightness modulation in 8 shades of gray, which greatly enhances the resolution. Most abdominal ultrasound uses gray-scale displays.

"Real-time" ultrasonography complements the high-resolution gray-scale images by displaying returning echos so quickly that the eye perceives them as a continuous phenomenon. This technique is extremely valuable in studying pulsatile and respiratory motion of many of the vessels of the abdomen and pelvis.

Duplex imaging combines pulse-echo imaging with pulsed Doppler techniques, so that anatomic configuration is displayed while flow velocities are determined by the Doppler component. Storage on an oscilloscope allows recording of static or real-time images while simultaneously determining the presence of flow by detecting the Doppler shift caused by moving red cells.

## Doppler Ultrasound

Doppler ultrasound works on the basic principle that any moving object in the path of a sound beam will shift the frequency of the transmitted signal as expressed by the formula

$$\frac{\Delta f = 2feV(\cos \theta)}{C}$$

$\Delta f$  = frequency shift;  $f_e$  = frequency of transmitted ultrasound;  $V$  = velocity of object;  $(\cos \theta)$  = angle of the incident sound beam to the object path;  $C$  = velocity of the sound in the medium being studied.<sup>3</sup>

The instrument receives the "frequency-shifted" signal, and the signal can either be heard or visually

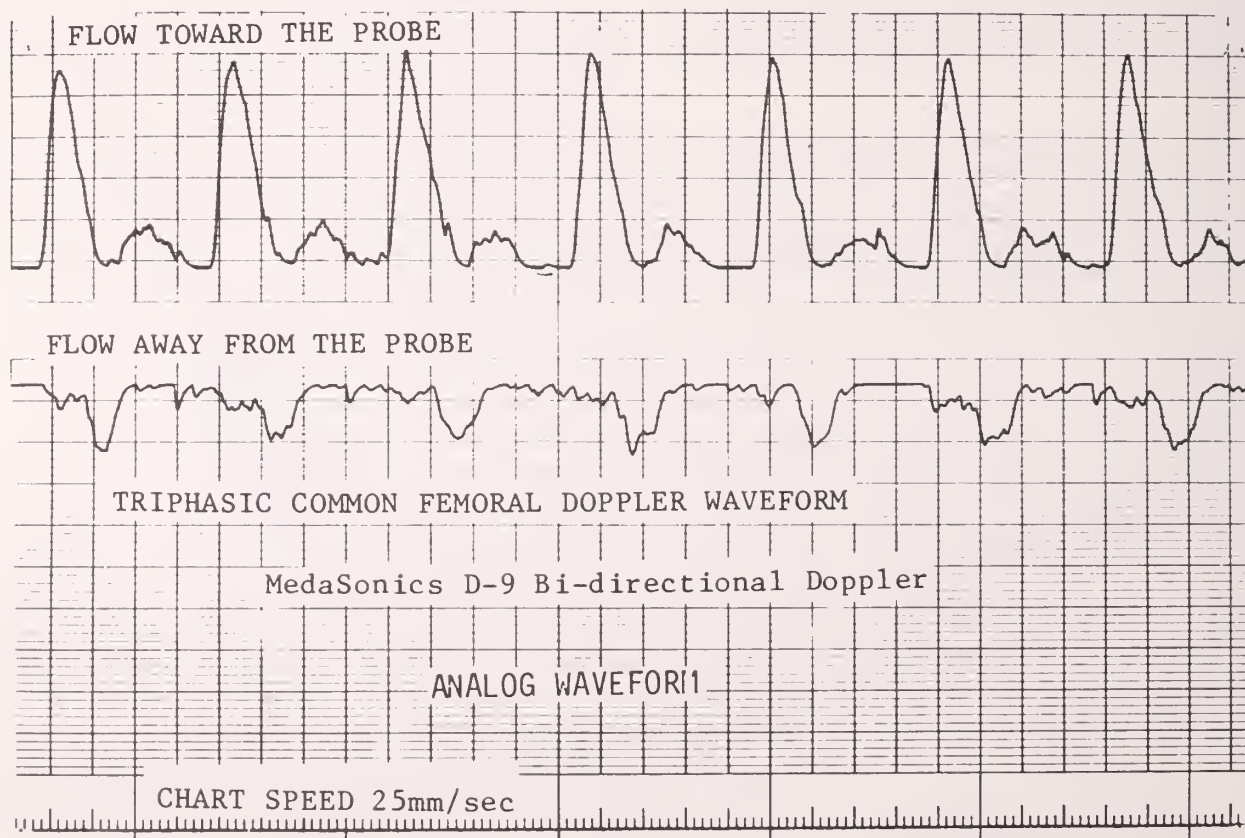


Fig 1. — Normal femoral arterial waveform.



displayed on a strip-chart recorder or oscilloscope.

A couple of practical points can be made about this equation. Notice that the shift in frequency ( $\Delta f$ ) is linearly related to the transmitting frequency ( $f_e$ ) — ie, for a constant velocity ( $V$ ) (of RBCs), doubling the transmitting frequency will double the recorded shift in frequency and thus increases the instrument's sensitivity. However, the absorption of the sound by the tissues (or medium being studied) is proportional to the transmitting frequencies ( $f_e$ ). Therefore, better depth penetration is observed at lower transmitting frequencies. The trade-off for better depth of penetration results in less frequency shift ( $\Delta f$ ). For most vascular applications the 5-10 MHz-emitting systems are best. Superficially located arteries, like the dorsalis pedis or posterior tibial arteries, are best evaluated using a 10 MHz probe, while deeper femoral or iliac vessels are better evaluated with 5 MHz or less. An 8-MHz probe is a good compromise for most clinical situations. These physical laws are part of the reason transcutaneous Doppler ultrasound of the renal arteries or other deep visceral arteries has not been satisfactory to date.

One other quick point about this formula. The

angle of the sound beam to the object path has been difficult to easily identify clinically and remains a major problem when trying to use Doppler ultrasound to make quantitative measurements (eg, volume of blood flow).

For most clinical applications, converting the Doppler shift to audible frequencies is all that is necessary. With practice, one can develop an "ear" for normal triphasic arterial sounds and differentiate them from the abnormal.

To record and quantitate the Doppler shift, a technique known as zero-crossing frequency-meter processing is used, whereby a voltage output proportional to the frequency shift can be used to generate an analog wave form such as shown in Figure 1. The wave form can be recorded and kept as a permanent part of the patient's chart. Figure 1 shows a normal femoral arterial wave form with initial forward flow during systole, followed by a slight reversal of flow during initial diastole, and a second forward flow as the elastic artery compensates. Distally to hemodynamically significant arterial stenosis, the wave form is dampened (Fig 2). It has a reduced peak amplitude, delayed peak, broadened systolic wave,

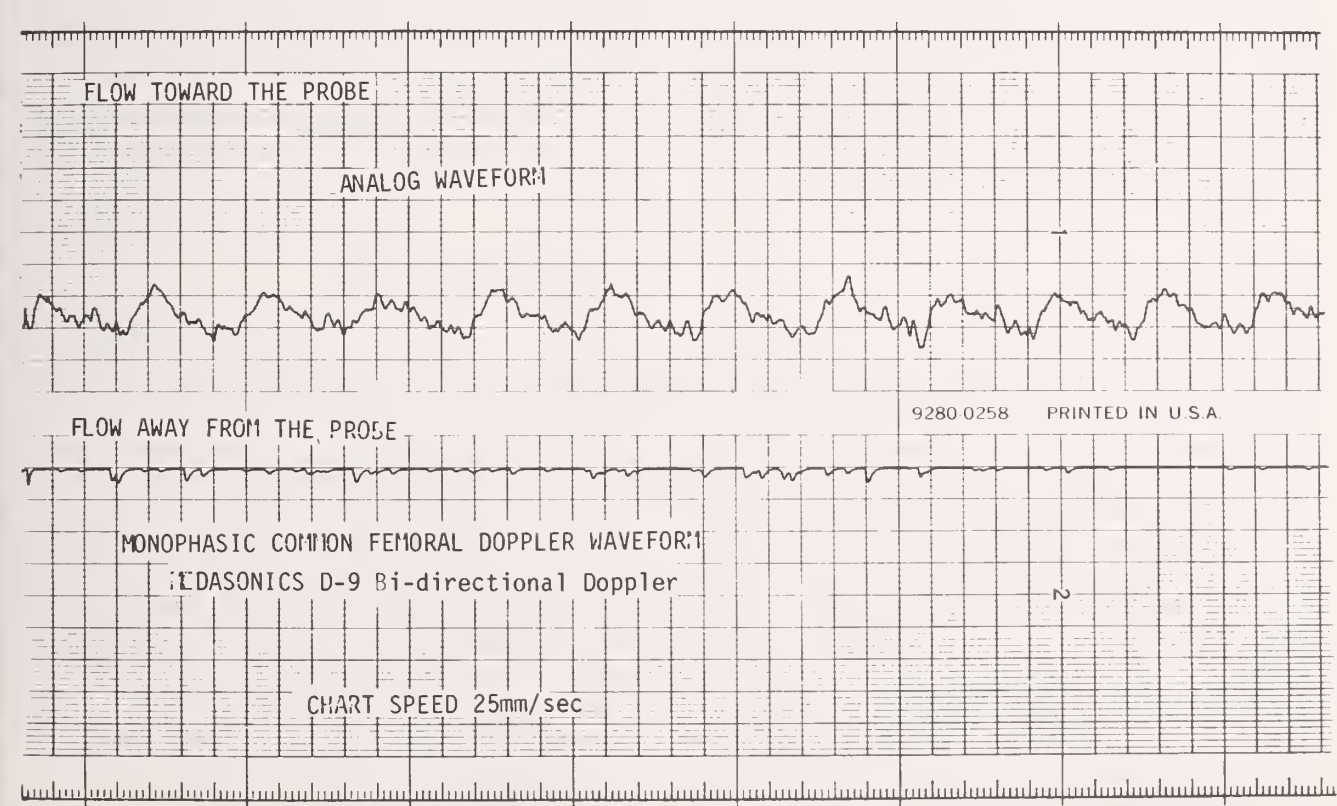


Fig 2. — Femoral arterial waveform indicating significant arterial stenosis.

and reduction or elimination of the reverse flow. Pulse-wave morphology can be visually analyzed for essentially any peripheral vessel. Quantitative assessment is not necessary for clinical purposes. A hematoma, graft material, or extensive atherosclerosis may produce artifacts.

Another way to analyze the Doppler frequency shift is spectral analysis. Various types of spectral analyses are available, but the process being used by most laboratories now is known as the fast Fourier transform system. Displays of the output include information relative to frequency shift vs time. These display systems have become very accurate in identifying varying degrees of stenosis by relating peak systolic velocities, diastolic velocities, and the "purity" with which Doppler shift changes are reflected back to the receiving instrument. With greater degrees of stenosis, the peak systolic velocity increases and marked broadening in the returning sound waves occurs, representing turbulence within the vessel caused by atherosclerotic plaques. Basically, then, spectral analysis is a broad term representing other ways to analyze shifting sound frequencies, which with experience can be identified as representing various degrees of disease in the vessel. Doppler ultrasound with spectral analysis then relates physiologic data and implicates the anatomic changes that cause those physiologic consequences. Real-time B-mode ultrasound has been used to reveal the vessel in question and, when combined with Doppler ultrasound and spectral analysis, represents the latest direction of noninvasive evaluation of vessels.

### **Plethysmography**

The term *plethysmography* implies simply the recording of volume changes in some portion of the body. Since transient volume changes of most body parts, except the lungs, are related to their blood content, plethysmography measures changes in the volume of blood in the part being examined. All types of plethysmography do the same job — record volume changes. The basic differences between instruments are in their method of recording changes in volume, method of calibration, ease of use, and stability and sensitivity. The earliest plethysmographs were water-filled systems, and this technique is still used for the oculopneumoplethysmography (OPG) technique by Kartchner-McRae.<sup>4</sup> Basically the body part in question is placed in a closed, water-filled chamber that is temperature controlled. Calibrating and recording devices are attached. When a volume change occurs, it is printed on a strip-chart recorder. Air-

filled plethysmographs work in a similar fashion. A pneumatic cuff is kept in contact with the skin by inflation to a known, low pressure. A calibration device is used to determine the degree of pen deflection for a given volume or pressure change introduced into the cuff. Changes in limb volume are then reflected by changes in the pressure recorded. Pulse-volume recordings,<sup>5</sup> Dr Gee's OPG<sup>6</sup> and Dr Cranely's phleborrheography (PRG)<sup>7</sup> are all examples of air plethysmographs.

Mercury-in-silastic-rubber strain gauges<sup>8</sup> are another form of plethysmography that is not widely used for a number of reasons. The gauges are extremely sensitive to patient movement and require such precise placement that reproducibility of results is difficult. Additionally, the gauges are difficult to calibrate, and they tend to deteriorate with time.

Impedance plethysmography (IPG)<sup>9</sup> is used in a number of centers and laboratories to investigate venous and arterial disease. IPG measures volume changes by noting the change in electrical impedance between four tape electrodes placed on the patient's leg. Since blood conducts electricity better than tissue, an engorged limb has a lower impedance. Proximal venous occlusion with a tourniquet, followed by sudden release of the tourniquet, results in a rapid increase in impedance in a normal limb. However, in limbs with deep venous obstruction, release of the tourniquet produces a much slower increase in impedance than expected since blood does not drain rapidly from the leg.

### **Oximetry — Transcutaneous Measurement of Skin Oxygen Level**

Recently a number of investigators applied some older techniques for the noninvasive diagnosis and follow-up of patients with peripheral vascular disease.<sup>10</sup> A newly developed sensor, a miniaturized, heated Clark polarographic oxygen sensor, was developed to measure tissue oxygen levels. Initial overlap of transcutaneous oxygen values ( $P_{tc}O_2$ ) between normal and diseased limbs could be attributed to variations in arterial oxygen content, cardiac output, or systemic oxygen delivery. However, use of the limb/chest  $P_{tc}O_2$  ratio has helped to quantify the deficit of tissue perfusion independent of variations in total body circulation and oxygen delivery. These sensors are used in a variety of ways, eg, intraoperative assessment of improvement in distal blood flow, noninvasive assessment for arterial injury in trauma patients, and post occlusive transcutaneous oxygen recovery time as a function of subclinical or subcritical




arterial occlusive disease. Transcutaneous oxygen measurements are also proving useful in recognizing diabetics with microvascular (neuropathic) ulcers that have pulsatile activity in the skin but very low  $P_{tO_2}$  values (unpublished observations). This reflects arterial-venous shunting without effective capillary exchange of oxygen.

## Photoplethysmography

Photoplethysmography (PPG) uses a photoelectric cell that emits infrared or laser light and transforms the returning signal into an analog wave. When placed on the skin, pulsatile activity in the skin and subcutaneous tissues is observed. Pulsatile flow in digits or other distal capillary beds is evaluated and, if combined with small pressure cuffs, is used to determine digital pressures which can predict the likelihood of healing of a lesion. PPG changes are also useful to evaluate patients with Raynaud's phenomenon or sympathetic dystrophy after exposure to cold.

## Conclusion

There are certainly other forms of noninvasive tests available, and there are a variety of ways to use them. The basic technologies described in this article represent the most common methods currently used. The next two articles will detail more clearly their use in specific situations. An important concept to remember is that all of these tests are technician- and interpreter-dependent; thus, each noninvasive laboratory should be expected to carefully evaluate its

own results against contrast studies and clinical outcome. 

## References

1. Zazzebski JA, Madsen EL: Physics and instrumentation in doppler and B-mode ultrasonography. *Intro Vas Ultrasonography*, ed W. & Zwiekel, Grune & Stratton, New York, pp 1-21, 1982.
2. Kossoff G: Gray scale echography in obstetrics and gynecology. *Commonwealth Acoustics Lab, Report No. 60*, Sydney, Australia, April 1973.
3. Strandness DE Jr: Doppler ultrasonic techniques in vascular disease. *Non-invasive Diag Tech in Vasc Disease*, ed EF Bernstein, CV Mosby Co, St. Louis, 1982.
4. Karchner MM, et al: Oculoplethysmography: An adjunct to arteriography in the diagnosis of extracranial carotid occlusive disease. *Am J Surg* 132:728, 1976.
5. Raines JK, et al: Vascular laboratory criteria for the management of peripheral vascular disease of the lower extremities. *Surg*, 79:21, 1976.
6. Gee W, Mehigan JT, Wylie EJ: measurement of collateral cerebral hemispheric blood pressure by ocular pneumoplethysmography. *Am J Surg*, 130:121, 1975.
7. Cranley JJ, et al: A plethysmographic technique for the diagnosis of deep vein thrombosis of the lower extremities. *SG* 10, 136:385, 1973.
8. Strandness DE Jr, Bell JW: Peripheral vascular disease: Diagnosis and objective evaluation using a mercury strain gauge. *Ann Surg*, 161 (Suppl):1, 1965.
9. Schraibman IG, et al: Impedance plethysmography: Evaluation of a simplified system of electrodes for the measurement of blood flow in the lower limb. *Br J Surg* 63:413, 1976.
10. White RA, et al: Noninvasive evaluation of peripheral vascular disease using transcutaneous oxygen tension, *Am J Surg*, 144:68, 1982.

*M. Alex Jacocks, MD, is an assistant professor in the Department of Surgery at the University of Oklahoma Health Sciences Center. A 1977 graduate of the university's College of Medicine, he is certified by the American Board of Surgery. Dr Jacocks is a Fellow of the American College of Surgeons and a member of the Southwestern Surgical Congress, Association for Academic Surgery, and Association for Surgical Education.*

*Thomas L. Whitsett, MD, is a professor of medicine and pharmacology in the OU Health Sciences Center's Department of Medicine. He was graduated from the university in 1962 and is certified by the American Board of Internal Medicine. He holds memberships in the American Society of Pharmacology and Experimental Therapy and the Society for Clinical Pharmacology & Therapeutics.*

## Coming in April . . .

Manuscripts being considered for publication in April include a paper on biochemical urine screening, a report on the physician and worker's compensation in Oklahoma, and commentary on the insanity defense. Also in production are a special on the establishment of health care policy in the US and Part II of "The Noninvasive Vascular Laboratory," discussing its use in the evaluation of arterial circulation.





**News from  
the Oklahoma State  
Department of Health**


## Western Blot Test: A Substantiation Profile for HTLV-III Virus Antibody

The Western blot test (Western Immunoblot) is an experimental research procedure, consisting of three different techniques, which was recently started in the Public Health Laboratory as a routine procedure. This labor-intensive test allows the detection of antibodies to specific molecular weight antigens of the HTLV-III/LAV virus. The Western Immunoblot test is used as a second-level test to substantiate a reactive HTLV-III screen test result.

In the Western Immunoblot procedure, disrupted HTLV-III virus is electrophoretically separated into its molecular weight antigen bands; then the bands are transferred (blotted) to and immobilized on cellulose nitrate strips. A cellulose nitrate strip containing the separated antigen is reacted with the patient's serum in an ELISA procedure. The strips are visually read for the presence of bands and compared with controls. The molecular weight of the antigens

detected ranges from 13,000 to 65,000 daltons. However, the only consistent correlation to infection by HTLV-III/LAV virus has been antibodies developed to the 24,000 (P-24) and/or 41,000 (P-41) mol wt protein bands. The P-24 band correlates with the major core protein antigen of the HTLV-III virus, and the P-41 band correlates with the glycosylated protein antigen of the viral envelope.

The Western Immunoblot test is considered reactive if antibodies to the P-24 and/or P-41 bands are found. A reactive Western Immunoblot test usually indicates that the person, at some time, has been exposed to the HTLV-III/LAV virus. It does not mean that AIDS will develop. In the terminal stage of AIDS, the Western Immunoblot test may even become nonreactive due to antigenuria in the patient.

It is recommended that all reactive screen tests for HTLV-III/LAV be confirmed or substantiated by a second-level test such as the Western Immunoblot test. This procedure is available at the Oklahoma State Department of Health for a \$25.00 charge. Physicians may call the Public Health Laboratory (405) 271-5070 for additional information on sample submission and billing. To maintain strict confidentiality, test results are reported to the sender by a code number and **no test results** are given over the telephone. 

DISEASE	December 1985	TOTAL TO DATE		
		This Year	Last Year	5 Yr. Avg.
AMEBIASIS	1	15	8	20
CAMPYLOBACTER INFECTIONS	11	297	213	—
ENCEPHALITIS, INFECTIOUS	3	29	21	30
GIARDIA INFECTIONS	20	326	368	—
GONORRHEA (Use ODH Form 228)	953	13005	13088	14818
HAEMOPHILUS INFLUENZAE INVASIVE DISEASE	47	255	211	—
HEPATITIS A	39	465	532	581
HEPATITIS B	29	240	208	279
HEPATITIS, NON-A NON-B	8	74	60	—
HEPATITIS UNSPECIFIED	7	84	117	212
MEASLES (RUBEOLA)	0	1	8	164
MENINGITIS, ASEPTIC	6	146	125	206
MENINGITIS, BACTERIAL (non-meningococcal, non H. Influenzae)	5	69	49	59
MENINGOCOCCAL INFECTIONS	6	34	30	35
PERTUSSIS	7	197	247	127
RABIES (Animal)	8	111	103	173
ROCKY MOUNTAIN SPOTTED FEVER	0	93	115	120
RUBELLA	0	1	0	3
SALMONELLA INFECTIONS	42	465	424	466
SHIGELLA INFECTIONS	28	283	214	337
SYPHILIS (Use ODH Form 228)	23	215	198	184
TETANUS	0	1	2	1
TUBERCULOSIS	17	248	231	308
TULAREMIA	1	19	23	32
TYPHOID FEVER	0	2	4	4

Diseases of Low Frequency	Total to Date This Year	
ACQUIRED IMMUNE DEFICIENCY SYNDROME	17	
BRUCELLOSIS	4	
LEGIONNAIRES DISEASE	21	
MALARIA	7	
REYE SYNDROME	2	
TOXIC SHOCK SYNDROME	14	
RABIES		
CADDO	Skunk	1
CARTER	Cat	1
PAYNE	Skunk	1

## Get a Grip on Overdue Accounts.



**Your Problem:** Overdue accounts. If you don't collect them, you're left with one choice: write them off.

**Your Alternative:** Tulsa Adjustment Bureau, Inc. For over 20 years, we've been helping clients in Tulsa and the surrounding area get a firm hold on overdue accounts. Our trained staff of professionals know how to get results. Results that mean money to you. And, in the event we don't collect, you won't owe us a cent. Guaranteed.

Call or drop by our office and we'll begin collecting your delinquent accounts. Let Tulsa Adjustment Bureau, Inc. show you how to get a grip on your overdue accounts today.

1754 Utica Square, Suite 283 Tulsa, Oklahoma 74114 (918) 749-1481  
In Oklahoma dial, 1-800-722-2703

T U L S A  
A D J U S T M E N T  
B U R E A U

## HARD WORK & SMALL MIRACLES



Dear Mr. Jo

I'm Simon Martin.  
After surgery for a brain tumor, I was  
paralyzed on my right side. After the  
hospital, my doctor recommended the  
Rehabilitation Institute of Oklahoma.

Now, I work my cattle just as I always  
did, and I walk without so much  
as a cane. The Institute can help  
you rebuild your life. I'm living  
testament to that.

Sincerely,

Simon Martin

**A**fter injury or illness strike and the hospital stay is over, the recovery process may not be complete. For many, the next step on the road to a more self-sufficient lifestyle is the Rehabilitation Institute of Oklahoma.

We work hard with every patient to achieve the small miracles of recovery.

Call or write today for complete information.



Rehabilitation  
Institute  
of Oklahoma

700 Northwest 7th Street  
Oklahoma City, OK 73102  
405-236-3131



*Consolidated approach to diagnosis, treatment***Oklahoma Cancer Institute opens next month in north OKC**

Oklahoma City will be the site for a major cancer care, education, and research institute, a group of area oncologists announced in mid-January.

Plans for the construction of temporary headquarters for the Oklahoma Cancer Institute, a multimillion dollar organizational structure, were introduced during a news conference held at the proposed location in the Memorial Professional Building on the Broadway Extension at Memorial Road.

The announcement was made by William L. Hughes, MD, Oklahoma City oncologist, who also announced he is resigning his full-time practice to serve the institute as president and chairman of the board. Also making the announcement was Harry M. Neer, division vice president for Hospital Corporation of America (HCA), a \$4.4 billion corporation with division offices in Oklahoma City. The institute is affiliated with HCA.

The institute will offer Oklahomans a consolidated approach to the diagnosis and treatment of cancer, a disease which annually takes the lives of more than 6,000 Oklahomans. A major educational campaign, focusing on early detection and warning symptoms of cancer, will be launched in April, coinciding with the expected completion date of the institute's facilities.

"The institute will allow Oklahomans to have a central source for both cancer diagnosis and treatment and cancer information," Hughes said. He explained that a host of special programs will be available through the institute, including screening programs for breast, testicular, skin, and colorectal

cancers, and support for cancer patients and their families through emotional, financial, and resource counseling programs.

Ten specialists, including oncologists, surgeons, and a radiation therapist, will combine their talents to offer Oklahomans this comprehensive approach to fighting cancer.

Board members of the Oklahoma Cancer Institute Foundation, a non-profit organization formed to provide education and research, include Drs Stephen B. Acker (radiation therapy), John Benear II (hematology/oncology), Jay Cannon (general surgery), Daniel Carmichael (general surgery), Ted Clemens, Jr. (hematology/oncology), Ralph Ganick (hematology/oncology), Michael Harkey (pathology), C. Houston Jameson III (hematology/oncology), Mark King (hematology/oncology), and Hughes. Other members are Karen V. Waddell, Neer, and Jayne Henline, liaison for the Oklahoma Cancer Information Line.

The foundation will be concerned mainly with seeking funding for clinical research and providing public education about cancer. Research activities include physician affiliations with the Southwest Oncology Group (SWOG) and the National Surgical Adjuvant Breast Project (NSABP). The institute is the largest Oklahoma physician group approved by SWOG and NSABP for certain sophisticated treatment protocols.

The foundation will offer both the public and physicians a full information source with the operation of the Oklahoma Cancer Information Line (OCIL), 1-800-522-0220 (271-8181 in Oklahoma City). Formed in January 1983, OCIL has served over 10,000 Oklahomans — both laymen and medical professionals — in providing the most up-to-date information about cancer. The program is recognized by



Wm. L. Hughes, MD



### **"Preserving Tradition, Embracing Change,"**

OSMA's 28-minute film on medicine today, enters its final stages of production on the Tulsa set. The film is scheduled to be released this spring. Below, M. Joe Crosthwait, MD, chairman of the OSMA's Council on Professional and Public Relations, who has spearheaded the film's production, shares the spotlight with Hollywood notable Martin Landau, the film's narrator.



### **FAMILY PRACTITIONERS AND GENERAL INTERNIST LOOKING FOR PRIVATE PRACTICE**

There is a perfect opportunity in Shawnee, Ok., 30 miles east of Oklahoma City. We will guarantee first year income of \$60,000.00 Net.

Send all inquiries and CV to Dr. G. D. Williamson, 1533 N. Harrison, Shawnee, Ok. 74801 or call 405-275-6903.

**OFFICE SPACE AVAILABLE IN IDEAL LOCATION.  
EXCELLENT AREA FOR AM-PM CLINIC.**

### **Oklahoma Cancer Institute** (continued)

the National Cancer Institute as the official source of cancer information for Oklahoma. OCIL will move its offices, currently located in the Oklahoma Allergy Clinic, to the institute in April.

The institute will serve Oklahoma and the southwest region of the United States, but will not provide inpatient care. Affiliated physicians will work closely with Oklahoma City hospitals, providing specialized hyperthermia, bone marrow, and radiation therapy treatments.

OCI's state-of-the-art cancer care and comprehensive health programs include on-staff physical therapists, pharmacists, nursing professionals, x-ray technicians, social workers, and pastoral and financial counselors.

"It is very difficult for the cancer patient and his/her family to deal with the emotional and physical aspects of cancer. There is much to know, much to learn, and much stress to deal with. The Oklahoma Cancer Institute provides a coordinated effort to ease the family's stress and to expedite the treatment and recovery process," Hughes said.

"Our major goal will always be to work to reduce the suffering and premature deaths caused by cancer," he said.

Long-range plans call for the institute to build a permanent facility in the Oklahoma Health Center. Project cost is an estimated \$5 million.

For more information contact Karen V. Waddell, HCA Division Office, (405) 840-2284, or Janet Sellers, StarCom Communications, (405) 524-1951 or 271-5100.





---

*Attendance required once every three years*

## **Loss Prevention Seminars now mandatory for PLICO insureds**

The Physicians Liability Insurance Company (PLICO) has made attendance at a PLICO Loss Prevention Seminar *mandatory* for its insured physicians. The company's board of directors voted to impose the new condition, effective this year.

According to the new endorsement on professional liability insurance policies, all PLICO-insured physicians must attend an OSMA/PLICO-sponsored Loss Prevention Seminar at least once every three years. Insured physicians who have never attended one of the seminars must attend one in 1986, as must physicians who have not attended since 1983. According to the endorsement, "If this condition is not met, the insured shall not be eligible to purchase new, additional, or renewal professional liability insurance from (PLICO)."

To assist Oklahoma physicians in meeting the new mandatory attendance requirement, PLICO has scheduled a series of nine seminars to be held throughout the state in May, June, September, and October (see page 189 for details).

PLICO's board of directors also established more stringent rules for the seminars. In order to receive credit for attending a seminar, a physician must arrive at least 15 minutes before the program's starting time and stay for the entire program. Any physician arriving late or leaving early will not receive credit.

As reported in the PLICO news letter in January, medical specialty societies will be given an opportunity to sponsor accredited Loss Prevention Seminars. To do so, a society must guarantee that at least 50 physicians will attend. The program must consist of a three-hour time block, for which the society may select a specialty-oriented speaker, and PLICO will furnish two additional speakers. PLICO will supervise the taking of attendance.

Any medical specialty society interested in sponsoring a Loss Prevention Seminar in 1986 should contact Ed Kelsay at the OSMA, 601 Northwest Expressway, Oklahoma City, OK 73118, (405) 843-9571. Some funding is available to help specialty societies offset the cost of such programs. □

## **CALL FOR RESOLUTIONS**

All resolutions to be presented to the Oklahoma State Medical Association House of Delegates Annual Meeting must be received in the OSMA executive offices no later than thirty (30) days prior to the meeting. This year's meeting will be held May 8-10, 1986, at the Excelsior Hotel and Tulsa Convention Center in Tulsa.

County medical societies or individuals wishing to submit resolutions should mail them to the OSMA, 601 Northwest Expressway, Oklahoma City, OK 73118. Should you need assistance in drafting such resolutions, please contact the executive offices at (405) 843-9571 or 1-800-522-9452.

**SUBMIT YOUR RESOLUTIONS  
ON OR BEFORE  
APRIL 9, 1986**



### Burton's Bahamian clinic closed

## Immunoaugmentative therapy poses AIDS risk, says study

An unproven cancer treatment known as immunoaugmentative therapy (IAT) poses a potentially serious international health problem, according to a report in the *Journal of the American Medical Association*. Patients receiving such treatment are at considerable risk of acquiring AIDS or hepatitis B through contaminated blood products, researchers say.

Gregory A. Curt, MD, of the National Cancer Institute, Bethesda, and colleagues say IAT has been administered until recently at the Immunology Researching Center in Freeport, Bahamas. Lawrence Burton, PhD, one of the best known alternative cancer therapists, established the facility in 1977 after failing to receive approval from the Food and Drug Administration (FDA) for clinical studies in the United States. His plans had included a clinic in the Oklahoma City area. In 1978, the Pan American Health Organization urged closing of the Freeport

clinic, the researchers say. By 1985, however, more than 3,000 people, mostly cancer patients, had been treated; in 1983, Dr Burton began treating AIDS patients as well.

The treatment consists of intramuscular injections of blood products derived from necrotic tumors and pooled blood of cancer patients and healthy donors. Analysis of some of these products in 1984 revealed contamination with several kinds of bacteria, as well as hepatitis B surface antigen and antibody to HTLV-III, the retrovirus believed to cause AIDS. The researchers add that abscesses had formed at the injection sites in many patients.

"Physicians and health officials who learn of patients receiving this therapy are advised that its efficacy remains unproved and that the risk of receiving contaminated blood products is considerable," the researchers say. "Of special concern is that (the center) claimed clinical experience in patients with newly diagnosed acute leukemia, testicular cancer, Hodgkin's disease, diffuse lymphomas, ovarian cancer, prostate cancer, and small-cell lung cancer, all of which are treatable or curable with more conventional therapies."

In 1984, Americans spent \$10 billion on unproved or unscientific remedies, the researchers report, noting that this is twice the total research budget of the entire National Institutes of Health. In July 1985, Dr Burton's clinic was closed by the Bahamian Ministry of Health, but reports indicate he may reopen the clinic in Mexico.

"The regulation of such treatment practices is difficult when they are offered outside the United States," the researchers conclude. "However, there is a need to establish procedures by which unproved and unorthodox treatments are formally evaluated for safety and efficacy so that current and reliable information can be obtained by both physicians and patients." □

### OFFICE SPACE AVAILABLE

Two NEW office spaces available in SHAWNEE, OKLAHOMA. PRIME LOCATION, HIGH EXPOSURE, HIGH VOLUME AREA. Ideal for AM-PM Clinic or Doctors' Offices. 2,000 sq. ft. each. Very modern and elegant offices. Call (405) 275-6903 for more information.

Also, need 2 family practitioners for Shawnee area. Guaranteed income.

**OSMA**  
**Physician Recovery Hotline**  
**(405) 691-7318**

# When you need Professional help...



*call a specialist.*

**RTS** is the professional placement specialist. With 15 years of medical experience, we have the expertise to know your employment requirements and match them with qualified medical applicants.

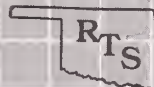
Pre-interviewing and screening saves costly expenditures of time, advertising and recruiting costs. By utilizing our professional resource pool, you receive prompt attention to your special needs.

**RTS** has the most innovative concept in permanent and temporary medical help available today, covering all areas of the medical field, including:

- PHYSICIANS      • PHYSICIAN ASSISTANTS      • RN/LPN      • LAB TECHS
- X-RAY/EKG TECHS      • EMT's      • ER COVERAGE

*Call a professional...*

OKC 405/794-9642 • TULSA 918/582-2132



**PLACEMENT SERVICE, INC.**  
HOME OF RELIEF TECH SERVICE

SERVING OKLAHOMA PHYSICIANS, CLINICS AND HOSPITALS STATEWIDE • LICENSED BY THE STATE OF OKLAHOMA



Failure rate ranges from 5% to 69%

## False negatives a problem in detection with mammography

Recent guidelines for breast cancer screening may have unintentionally "oversold" the sensitivity of mammography in detecting malignancies.

Recommendations from the American College of Radiology and the American Cancer Society for periodic mammograms in all women beyond the ages of 35 to 40 have "unwittingly created the impression that the absence of radiographic evidence of a malignant condition effectively excludes the presence of breast cancer," comment surgeon James F. Newsome, MD, and radiologist Robert McLelland, MD, of the University of North Carolina, Chapel Hill.

"The impact of mammography on the earlier detection, diagnosis, and management of breast cancer has been dramatic and undeniably positive," they point out in the *Journal of the American Medical Association*. Unfortunately, the technology is vulnerable to "false negatives," with malignant tumors fail-

ing to be detected. Thus, when a breast mass is palpated, either a needle aspiration or open incision biopsy should be performed, the authors urge, even if the mammogram is negative.

The false negative rate for mammography varies from a low of 5% to a high of 69%, the researchers say. The high false negative percentage is associated with dysplastic breasts in selected patients, which are unusually difficult to diagnose, they add.

"With dedicated mammographic equipment and experienced radiologists, we believe that the false-negative rate should not exceed 10%," they assert. "The combination of optimal breast self-examination, optimal physical examination, and optimal mammography offers the best opportunity for early detection of breast cancer," the authors conclude. □

## Full-service laboratory locates in Oklahoma Health Center

Metropex Laboratory, a new full-service medical laboratory, has been established to serve the metropolitan Oklahoma City medical community, it was announced recently.

The new laboratory, located in the Presbyterian Professional Building, 711 Stanton L. Young Boulevard, has already been Medicare-certified by the federal Health Care Financing Administration (HCFA), according to Pat Sato, RN, Metropex's administrator.

The Metropex Laboratory, according to Carol Holland, laboratory supervisor, is equipped and staffed to provide complete laboratory services for private physicians, clinics, and nursing homes.

Sato is the former assistant director of oncology at Presbyterian Hospital. She has served as a management consultant to private physicians and as a consultant with the Innovative Health Programs Corporation (IHP).

Holland is a certified medical technologist and has nine years of medical laboratory experience, including the Norman Regional Hospital Laboratory and the Tulsa Red Cross Laboratory.

Tommy L. Hewett, MD, 1971 graduate of the University of Oklahoma College of Medicine, serves as the laboratory's pathology director. □

### PHYSICIANS AND/OR NURSE PRACTITIONERS

We are one of America's largest health care corporations. Currently we are seeking either a Physician and/or Nurse Practitioner to join the professional team at our Plasma Donor Center in Wichita Falls and other locations throughout Texas.

Responsibilities will include performing physicals in conjunction with donor screening and evaluations. We will consider Physicians who wish to work on a consulting basis. Candidates must be Texas-licensed or eligible.

We offer an excellent work environment, a highly competitive salary and liability protection. For immediate consideration please send curriculum vitae/resume to **Art Barron, Alpha Therapeutic Corp., 5555 Valley Blvd., Los Angeles, CA 90032**. Equal Opportunity Employer M/F.

  
THERAPEUTIC CORPORATION



# Always on call.



For over 20 years, C. L. Frates and Company has been recognized as "Insurance Counselors to the Oklahoma State Medical Association." Because of our long-term relationship with OSMA, we understand the priorities and time limitations of the medical profession.

We are deeply committed to meeting the special needs of doctors, staff and their families through eight OSMA-endorsed insurance plans. With OSMA owned and governed Physicians Liability Insurance Company, we offer professional liability and a comprehensive medical/hospitalization plan, PLICO HEALTH. Our other OSMA-endorsed insurance programs are disability income, business overhead expense, term life, accidental death/dismemberment, personal liability umbrella and hospital indemnity.

One of our experienced insurance specialists is available at any time, day or night, to discuss or provide a complete, no obligation, personal and business risk analysis. For more information about our OSMA-endorsed insurance plans, please give us a call.



P.O. Box 18839 • Oklahoma City, OK 73154 • 405/524-7811 • Toll Free 1-800-522-9219

### Lower legal impairment level recommended

## **AMA council's study on alcohol and driving called landmark**

A report on alcohol and driving from the AMA's Council on Scientific Affairs will become a landmark article in the field of driving safety, predicts Editor George D. Lundberg, MD, in the *Journal of the American Medical Association*.

"The report clearly describes the current state of knowledge regarding the epidemiology of alcohol in road crashes, the effects of alcohol on driving performance, chemical analysis for alcohol, countermeasures, and human risk factors," Lundberg points out.

The council report, adopted the AMA House of Delegates in 1985, recommends that all states adopt a blood alcohol level of 0.05% as per se evidence of alcohol-impaired driving. The recommendation is based on new evidence that shows driving ability in some people is impaired by a much lower level of alcohol than previously thought. The 0.05 level is half that recognized by most states, including Ok-

lahoma, for driving-under-the-influence (DUI) prosecution.

Other recommendations include public education programs urging drivers not to drink, a legal drinking age of 21 years in all states, adoption by all states of administrative driver's license suspension for DUI cases, and encouragement of the automobile industry to develop methods to thwart operation of a motor vehicle by an intoxicated person.

Lundberg points out that education efforts and legal penalties should be targeted primarily to two high-risk groups: young drivers and chronic alcoholics. He adds that although ethics and peer pressure may curtail the incidence of teenage and adult drinking and driving, only strict laws and law enforcement will deter alcoholics. Forensic physicians can play a crucial role in the courts, Lundberg adds.

According to the council report, drivers aged 16 to 19 years have the highest rate of alcohol-involved fatal crashes per unit of travel. Data from 1983 show that 33% (17,764) of all drivers in fatal road crashes that year were 16 to 24 years old; 38% were driving under the influence of alcohol, compared with 26% for all other age groups. Younger drivers additionally may have low to moderate blood-alcohol levels when involved in auto crashes, the report says. Lundberg points out that it is the combination of inexperience both in use of alcohol and in driving that puts teenagers at elevated risk.

Among other problems, alcohol-impaired drivers are less likely to wear seat belts, and alcohol itself enhances injury. "Contrary to the popular belief in being 'too drunk to get hurt,' more alcohol-impaired crash victims suffer serious injury than sober victims," the report notes. Alcohol also makes diagnosis and treatment of injuries more difficult.

In a related letter, Ralph F. Hudson, MD, of Eau Claire, Wis, supports legal adoption of the 0.05% blood alcohol level. He says that physicians have the responsibility for prevention of injury as well as for treatment, and that states have responsibility for ending legal sanction of driving under the influence of alcohol. This can be accomplished simply by changing the legal definition of DUI from 0.10% to 0.05%. The new restriction "would be effective because responsible drivers would be prevented from that temporary irresponsibility with its potential for death and injury," Hudson says.



**Veterans  
Administration**

## **PHYSICIAN**

Board Certified or Eligible in  
IM, Emergency Medicine, or FP  
to staff VA Outpatient Dept. in  
MUSKOGEE, OKLAHOMA

Salary \$64,000 - \$72,000  
Liberal Fringe Benefits  
An Equal Opportunity Employer

Contact: RUSSELL GLYNN, M.D.  
VA Medical Center (11A)  
Muskogee, OK 74401

(918) 683-3261 ext. 351



A.

B.



C.

**East Central County Medical Society**  
(Muskogee, Wagoner, McIntosh counties)  
held its mid-winter meeting in Muskogee on  
January 13.

A. Bartis M. Kent, MD, Muskogee,  
member of the OSMA Council on Medical  
Services, and Edward H. Fite, Jr., MD, Muskogee,  
the society's legislative chairman.

B. Faces in the crowd . . .

C. W.B. Dawson, MD, Muskogee, the society's  
president-elect, and Joe S. Hester, MD, Mus-  
kogee, the society's president, (seated) listen to  
guest speaker Elvin M. Amen, MD, Bartlesville,  
OSMA president.

INTERESTED  
IN FINE OFFICE FACILITIES  
IN A THRIVING COMMUNITY?

## EDMOND MEDICAL PLAZA

Across Street From Edmond Memorial Hospital

**First Class Medical Suites  
At An Affordable Rate**

WRITE: Edmond Medical Plaza Leasing Agent  
1601 Northwest Expressway, Suite 1010, Oklahoma City, Oklahoma 73118  
Or Call Clay T. Farha: 405-524-6336

EDMOND MEDICAL PLAZA  
120 North Bryant, Edmond, Oklahoma



## Report links beta blockers and use of tricyclic antidepressants

A new study indicates that use of beta blockers may be an important cause of iatrogenic depression in patients with high blood pressure.

Jerry Avorn, MD, of Harvard Medical School, and colleagues analyzed Medicaid prescription records for 1980-1981 to determine tricyclic antidepressant (TCA) use among patients who were also taking commonly prescribed medications for high blood pressure. The levels of TCA use were then compared with the levels of TCA use among other patients with chronic conditions.

Patients using beta blockers were 50% more likely than other patients to be using antidepressants, the researchers report in the *Journal of the American Medical Association*. "Use of TCA was significantly higher in patients taking B-blockers (23% over two years) than for patients taking hydralazine or hypoglycemics (both 15%) or methyldopa or reserpine (both 10%)." For patients receiving B-blockers, the likelihood of also receiving a TCA was 1.5 relative to patients receiving hydralazine or hypoglycemics. Hydralazine, methyldopa, and reserpine are all antihypertensive drugs; hypoglycemics are used in the treatment of diabetes.

"As a group, the B-blockers are comparatively safe

as well as effective," the researchers say, but there is ample anecdotal evidence of patients with no history of psychiatric illness who experience dysphoria or depression while using the drugs. They add that the approach of their study is conservative, since it detects only the most obvious cases of depressive side effects.

The difference in antidepressant use could not be attributed to age, sex, or the existence of other conditions, such as angina or cardiac arrhythmia, the researchers observe. They note that among B-blocker users, younger patients were more likely to be taking antidepressants. Twenty-nine percent of patients aged 20 to 44 years used TCAs, compared with 24% aged 45 to 64 years, and 17% aged 65 years and older. The researchers suggest that central nervous system side effects may be milder in older patients, or such symptoms may not be perceived as unusual for that age group.

The researchers call for further study into the possible link between B-blockers and depression. Since their introduction in the 1960s, B-blockers have been used to treat a wide variety of illnesses, ranging from angina pectoris and hypertension to glaucoma and stage fright. □

### IN MEMORIAM

#### 1985

E.C. Lindley, MD	March 1
Charles W. Freeman, MD	March 5
Floyd L. Waters, MD	March 5
Forest R. Brown, MD	March 19
William M. Leebron, MD	March 22
Louis A. Martin, MD	March 22
Don D. Sullivan, MD	March 27
Hanna B. Karam, MD	March 28
John R. Cotteral, MD	April 30
Ernest S. Kerekes, MD	June 8
L. Chester McHenry, MD	June 8
Seigul J. Polk, MD	June 10
Murray M. Cash, MD	June 11
Franklin Jesse Nelson, MD	June 13
Robert L. Kendall, MD	June 21

Marion K. Ledbetter, MD	July 3
James Floyd Moorman, MD	August 8
Oscar R. White, MD	August 14
Maurice P. Capehart, MD	August 29
Meredith M. Appleton, MD	September 7
Robert A. Northrup, MD	September 8
Carl H. Bailey, MD	September 9
Hugh B. Spencer, MD	September 13
Bernice E. McCain, MD	September 14
Robert Ray Rupp, MD	October 2
William C. Moore, MD	October 24
Jesse Ray Waltrip, MD	November 30
Charles F. Obermann, MD	December 30

#### 1986

Alexander Poston, MD	January 3
----------------------	-----------

## Junior high schools host study

# Sex education program gets dramatic results in Chicago

Sex education programs presented to inner-city junior high school students dramatically improve understanding of sexuality, pregnancy, and contraception, according to a study from Northwestern University Medical School. The study also documented excellent retention of the information two months after instruction, but did not measure changes in behavior.

Evaluated was The Discovery Program, two one-hour presentations conducted by medical student volunteers in Chicago inner-city schools. The program, initiated in 1982 by the medical school and the Chicago Public School System, was evaluated by Northwestern's Michael D. Benson, MD, and colleagues. Students were tested before the first hour of instruction, 5 days after the second presentation, and 8 to 12 weeks later.

"A study including 1,133 youngsters demonstrated a 32% improvement in scores with excellent retention," the researchers state in the *Journal of the American Medical Association*.

One unexpected finding was that although socioeconomic status, grade, and sex all influenced the level of knowledge prior to instruction, it did not affect the degree of learning. "It was no surprise that older children and females knew more initially," the researchers say, although these differences were relatively small. The program's effect on student knowledge was additive; eighth grade females scored 13% higher than seventh grade males. The researchers say theirs is the most thoroughly investigated sex education course in the United States, for any grade level.

The two hours of instruction include the use of slides, lecture presentations, and printed material regarding male and female anatomy, emotional and physical changes, menstruation, pregnancy, contraception, and sexually transmitted diseases. Self-

respect is emphasized as an essential part of healthy sexuality. The study showed that seventh- and eighth-grade boys and girls learned equally well in a coed environment, and appeared to be uninhibited in asking sex-related questions.

"Two-fifths of female teenagers in the United States will have conceived by age 19 years, and half of these will go on to deliver at term," according to the report. Most sex education efforts concentrate on young women after the birth of their first child, the researchers say. Even teen contraceptive clinics primarily treat female teenagers after they have had unprotected intercourse.

"The first step, and probably the most cost effective, in trying to reduce unplanned adolescent child-bearing is a well-designed, mass effort to provide children with sex education in the public schools before they begin sexual activity."

**Oklahoma**  
**Cancer Information Line**  
**1-800-522-0220**  
**(in Oklahoma City, 271-8181)**



## A Perspective On Personal Financial Planning.

# In Government Guaranteed Mortgages We Trust.

John Hancock U.S. Government Guaranteed Mortgages Trust offers you a new investment opportunity. Now you can invest in a portfolio of "Ginnie Mae" certificates (Government National Mortgage Association). The Trust is designed for a high level of return, safety of principal and liquidity by investing in a port-

folio of securities guaranteed by the U.S. Government.\*

A minimum initial investment of \$1000 makes this attractive for both large and small investors, and you can add to your account in amounts of \$25 or more at any time.

For more information and a Prospectus, fill in the coupon below.

\* Government guarantee does not extend to shares of the fund.

Please send me more complete information including a Prospectus on John Hancock U.S. Government Guaranteed Mortgages Trust. I will read the materials carefully before investing or forwarding funds.

Jim Morris  
James M. Morris, II and Associates  
3613 N.W. 56th, Suite 320  
Oklahoma City, OK 73112  
405-946-9511

Name \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_

State \_\_\_\_\_

Zip \_\_\_\_\_

*John Hancock*  
U.S. Government  
Guaranteed Mortgages Trust



## MISCELLANEOUS ADVERTISEMENTS

Miscellaneous advertising is available at the rate of \$10 per month per vertical inch or any portion thereof (ie, 1-7 lines is \$10, 8-14 lines is \$20, etc). Rates are not prorated for fractions of an inch. One inch of space contains 7 lines of copy averaging 55 characters each. The first line of the ad will automatically be set in all capital letters and averages only 38 characters. Count every letter, space, and punctuation mark as a character.

Box numbers will be assigned upon request at no additional charge. When requesting a box number, the last line of the ad must read: Reply JOURNAL BOX 00, c/o OSMA. This will add 32 characters and must be included.

Ads can be set in all boldface type if requested, for an additional \$2 per month.

Typewritten copy is preferred. Otherwise, print very legibly in ink. Ads will not be accepted on the telephone. Be sure to indicate how many times the ad is to run, and for the JOURNAL's records, please include a name, address, and telephone number where you can be reached if necessary. Ads must be received by the first of the month preceding publication.

In writing your ad, remember that it will be read statewide; include complete address and/or telephone information. If discussing employment, be sure to specify whether you are seeking a position or trying to fill one.

Enclose payment with your ad and mail to: OSMA JOURNAL, 601 Northwest Expressway, Oklahoma City, OK 73118. OSMA members and state agencies will be invoiced upon request.

**PHYSICIANS OF VARIOUS SPECIALTIES NEEDED** for temporary and permanent salaried positions throughout Oklahoma and adjoining states. ER and radiology physicians also needed. Janis Edwards, RN, National Health Service, 3300 N.W. 23rd, Oklahoma City, OK 73107, (405) 722-0921.

**IDEAL OFFICE SPACE FOR MEDICAL OR DENTAL** practice at 117 Patton Drive, Medical Plaza Building, directly across from St. Joseph Medical Center, Ponca City. Ready for immediate occupancy. 2 offices, 2 exam rooms, 2 bathrooms, utility room. Terms negotiable. For more information phone P. H. Winslow, M.D. (405) 765-4620 days or 765-8381 evenings.

**HOUSE FOR SALE BY OWNER:** 3 YRS OLD, NW OKC (2,400 Sq Ft) 8 Rm 3 Bdrm 2 Bath, Edmond Schools, OKC Utilities. Lots of Extras. Ask: \$122,500. (405) 752-0253.

**PHYSICIANS NEEDED — FAMILY PRACTICE,** Orthopedist, Ob-Gyn, Internist/Oncologist, Dermatologist, Otolaryngologist and Podiatrist. 30-Physician Multispecialty Clinic/Ambulatory Surgery Center. Excellent benefits. Send CV and 3 references to Jeanne Bledsoe, Southern Plains Medical Center, 2222 Iowa, Chickasha, OK 73018, or phone 405-224-4853.

**WANTED: EQUIPMENT TO ESTABLISH FAMILY** practice office: need everything — *reasonably priced*; exam tables, medical cabinets and instruments, oto/ophth., EKG audiogram, vision tester, PFT, centrifuge, autoclave incubator, CBC machine, X-ray machine, cassettes and processor. Reply JOURNAL Box WW, c/o OSMA.

**AVAILABLE —** Practice Opportunity, equipment, and professional building. 159' frontage by 100' deep, on main street and highway. Building 2,050 square feet, brick over cement block. Clinic 1,200 square feet plus 850 square feet rented. Two hospitals within 15 miles, two nursing homes in community. Only fulltime physician in the community. Wide drawing area. Contact: T. P. Forrestal, DO, 711 Main Street, Comanche, OK 73529. 405/439-2318 or 405/439-6642.

**WANTED — GYNECOLOGIST,** board certified or board qualified and/or 2 obstetrician-gynecologists board certified or board qualified to join established practice in mid-western city. Excellent opportunity and facilities. 360 bed hospital. Please send resume to PO Box 2397, Muskogee, OK 74402. tf

**OFFICE SPACE FOR RENT IN ESTABLISHED** industrial clinic near St. Anthony Hospital, Oklahoma City. Lab & X-ray available. Will be able to make some referrals. Phone (405) 232-6144.

**FOR SALE — USED OFFICE EQUIPMENT — 3** exam tables (1) Ritter — Chairs — 2 metal filing cabinets — lights, etc. Excellent buy. For more information call owner at (405) 843-6566.

**TEXAS — NORTH OF DALLAS — IMMEDIATE FULL-**time and part-time positions in hospital-affiliated family practice clinic. Offering attractive incentive for purchase of clinic as practice. Beautiful resort area has stable patient population with great growth potential. Contact: Emergency Consultants, Inc., 2240 South Airport Road, Room 32, Traverse City, MI 49684; or call 1-800-253-1795 or in Michigan 1-800-632-3496.

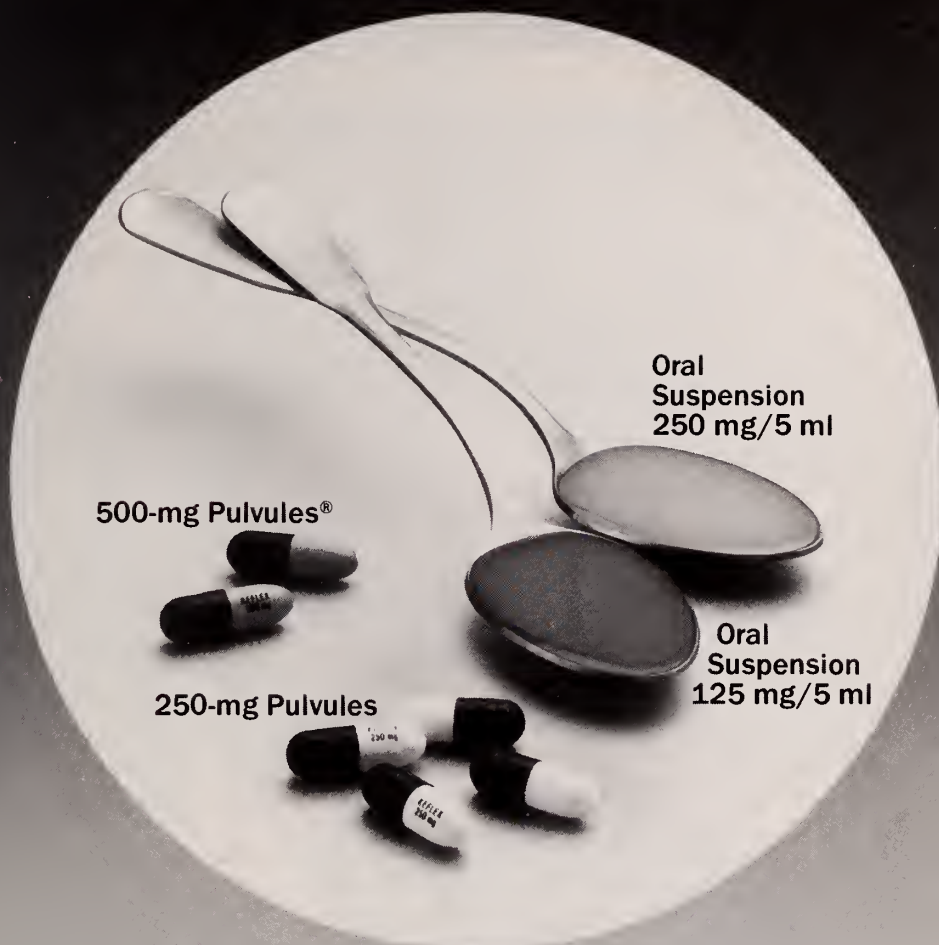
**SEEKING BOARD CERTIFIED FAMILY PRACTICE,** Pediatric, and Internal Medicine, M.D.s to provide continuity of care for a hospital-affiliated network of convenient care/family practice centers in a large Midwestern city. Salary plus profit sharing. Send resume to: Box 470300, Suite 1348, Tulsa, OK 74145 ref #1/86B.

**PEDIATRICIAN WANTED — FULL-TIME POSITION** available with 21-doctor multispecialty group. Suburban area (28,000 population) in central Okla. located 30 miles from Oklahoma City. Above average benefits and earnings. Adjacent to 140-bed hospital. Send C.V. to William J. Birney, P.O. Box 849, Shawnee, Okla., 74801.

**FOR SALE — 4,000-SQUARE-FOOT PHYSICIAN'S** office building, 15 years old, one story, built by Marshall Erdman, and located across the street from the city's 100-bed hospital, in N.E. Oklahoma town of 17,000 serving a population of more than 45,000. The area is in need of OB-GYN (1 in town), GP-FP (3 in town), INT. MED. (3 going on 2 in town), and GEN. SURG. (2 in town). But, we have full-time ORTHO., UROL., RAD. (CAT scan, ultrasound, nuc. med.), PATH., and 24-hr. E.R. coverage. Available also, is one day a week consultation opportunities with Tulsa-based PUL. MED., CARD., ENT, ALLER., and GI. specialists. The hospital has 4 O.R.s and a cysto room, 2 delivery rooms, newborn nursery, and a 9-bed med-surg I.C.U. Lots of good opportunities here. Reply JOURNAL Box AA, c/o OSMA.



# Easy To Take



Oral  
Suspension  
250 mg/5 ml

500-mg Pules®

Oral  
Suspension  
125 mg/5 ml

250-mg Pules

**Keflex**®  
cephalexin

Additional information  
available to the profession  
on request.



420113

Dista Products Company  
Division of Eli Lilly and Company  
Indianapolis, Indiana 46285  
Mfd. by Eli Lilly Industries, Inc.  
Carolina, Puerto Rico 00630

**On nitrates,  
but angina still  
strikes...**



# After a nitrate, add ISOPTIN<sup>®</sup> (verapamil HCl/Knoll)

**To protect your patients, as well as their quality of life,  
add Isoptin instead of a beta blocker.**

**F**irst, Isoptin not only reduces myocardial oxygen demand by reducing peripheral resistance, but also increases coronary perfusion by preventing coronary vasospasm and dilating coronary arteries — both normal and stenotic. These are antianginal actions that no beta blocker can provide.

Second, Isoptin spares patients the beta-blocker side effects that may compromise the quality of life.

With Isoptin, fatigue, bradycardia and mental depression are rare. Unlike beta blockers, Isoptin can safely be given to patients with asthma, COPD, diabetes or peripheral vascular disease. Serious adverse reactions with Isoptin are rare at recommended doses; the single most common side effect is constipation (6.3%).

Cardiovascular contraindications to the use of Isoptin are similar to those of beta blockers: severe left ventricular dysfunction, hypotension (systolic pressure <90 mm Hg) or cardiogenic shock, sick sinus syndrome (if no artificial pacemaker is present) and second- or third-degree AV block.

So, the next time a nitrate is not enough, add Isoptin... for more comprehensive antianginal protection without side effects which may cramp an active life style.



**ISOPTIN. Added  
antianginal protection  
without beta-blocker  
side effects.**



# ISOPTIN® (verapamil HCl/Knoll)

80 mg and 120 mg scored, film-coated tablets

**Contraindications:** Severe left ventricular dysfunction (see *Warnings*), hypotension (systolic pressure < 90 mm Hg) or cardiogenic shock, sick sinus syndrome (except in patients with a functioning artificial ventricular pacemaker), 2nd- or 3rd-degree AV block. **Warnings:** ISOPTIN should be avoided in patients with severe left ventricular dysfunction (e.g., ejection fraction < 30% or moderate to severe symptoms of cardiac failure) and in patients with any degree of ventricular dysfunction if they are receiving a beta blocker. (See *Precautions*.) Patients with milder ventricular dysfunction should, if possible, be controlled with optimum doses of digitalis and/or diuretics before ISOPTIN is used. (Note interactions with digoxin under *Precautions*.) ISOPTIN may occasionally produce hypotension (usually asymptomatic, orthostatic, mild and controlled by decrease in ISOPTIN dose). Elevations of transaminases with and without concomitant elevations in alkaline phosphatase and bilirubin have been reported. Such elevations may disappear even with continued treatment, however, four cases of hepatocellular injury by verapamil have been proven by rechallenge. Periodic monitoring of liver function is prudent during verapamil therapy. Patients with atrial flutter or fibrillation and an accessory AV pathway (e.g. W-P-W or L-G-L syndromes) may develop increased antegrade conduction across the aberrant pathway bypassing the AV node, producing a very rapid ventricular response after receiving ISOPTIN (or digitalis). Treatment is usually D.C.-cardioversion, which has been used safely and effectively after ISOPTIN. Because of verapamil's effect on AV conduction and the SA node, 1° AV block and transient bradycardia may occur. High grade block, however, has been infrequently observed. Marked 1° or progressive 2° or 3° AV block requires a dosage reduction or, rarely, discontinuation and institution of appropriate therapy depending upon the clinical situation. Patients with hypertrophic cardiomyopathy (IHSS) received verapamil in doses up to 720 mg/day. It must be appreciated that this group of patients had a serious disease with a high mortality rate and that most were refractory or intolerant to propranolol. A variety of serious adverse effects were seen in this group of patients including sinus bradycardia, 2° AV block, sinus arrest, pulmonary edema and/or severe hypotension. Most adverse effects responded well to dose reduction and only rarely was verapamil discontinued. **Precautions:** ISOPTIN should be given cautiously to patients with impaired hepatic function (in severe dysfunction use about 30% of the normal dose) or impaired renal function, and patients should be monitored for abnormal prolongation of the PR interval or other signs of excessive pharmacologic effects. Studies in a small number of patients suggest that concomitant use of ISOPTIN and beta blockers may be beneficial in patients with chronic stable angina. Combined therapy can also have adverse effects on cardiac function. Therefore, until further studies are completed, ISOPTIN should be used alone, if possible. If combined therapy is used, close surveillance of vital signs and clinical status should be carried out. Combined therapy with ISOPTIN and propranolol should usually be avoided in patients with AV conduction abnormalities and/or depressed left ventricular function. Chronic ISOPTIN treatment increases serum digoxin levels by 50% to 70% during the first week of therapy, which can result in digitalis toxicity. The digoxin dose should be reduced when ISOPTIN is given, and the patients should be carefully monitored to avoid over- or under-digitalization. ISOPTIN may have an additive effect on lowering blood pressure in patients receiving oral antihypertensive agents. Disopyramide should not be given within 48 hours before or 24 hours after ISOPTIN administration. Until further data are obtained, combined ISOPTIN and quinidine therapy in patients with hypertrophic cardiomyopathy should probably be avoided, since significant hypotension may result. Clinical experience with the concomitant use of ISOPTIN and short- and long-acting nitrates suggest beneficial interaction without undesirable drug interactions. Adequate animal carcinogenicity studies have not been performed. One study in rats did not suggest a tumorigenic potential, and verapamil was not mutagenic in the Ames test. **Pregnancy Category C:** There are no adequate and well-controlled studies in pregnant women. This drug should be used during pregnancy, labor and delivery only if clearly needed. It is not known whether verapamil is excreted in breast milk; therefore, nursing should be discontinued during ISOPTIN use. **Adverse Reactions:** Hypotension (2.9%), peripheral edema (1.7%), AV block: 3rd degree (0.8%), bradycardia: HR < 50/min (1.1%), CHF or pulmonary edema (0.9%), dizziness (3.6%), headache (1.8%), fatigue (1.1%), constipation (6.3%), nausea (1.6%), elevations of liver enzymes have been reported. (See *Warnings*.) The following reactions, reported in less than 0.5%, occurred under circumstances where a causal relationship is not certain: ecchymosis, bruising, gynecomastia, psychotic symptoms, confusion, paresthesia, insomnia, somnolence, equilibrium disorder, blurred vision, syncope, muscle cramp, shakiness, claudication, hair loss, macules, spotty menstruation. **How Supplied:** ISOPTIN (verapamil HCl) is supplied in round, scored, film-coated tablets containing either 80 mg or 120 mg of verapamil hydrochloride and embossed with "ISOPTIN 80" or "ISOPTIN 120" on one side and with "KNOLL" on the reverse side. Revised August, 1984

2385



**KNOLL PHARMACEUTICAL COMPANY**  
30 NORTH JEFFERSON ROAD, WHIPPANY, NEW JERSEY 07981

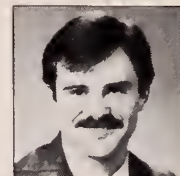
2406

## EMPLOYEES APPRECIATE THE PAYROLL SAVINGS PLAN.

JUST ASK THE  
PEOPLE AT THE  
BOEING COMPANY.

"My folks gave me a Bond for my birthday every year. Now I can do the same for my kids."

—Vaughn Hale



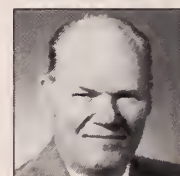
"It's certainly a painless way to save. The money comes directly out of my paycheck every two weeks."

—Florence Perry



"This is one way I can support my government and save at the same time."

—Douglas Scribner



U.S. Savings Bonds now offer higher variable interest rates and a guaranteed return. Your employees will appreciate that. They'll also appreciate your giving them the easiest, surest way to save.

For more information, write to: Steven R. Mead, Executive Director, U.S. Savings Bonds Division, Department of the Treasury, Washington, DC 20226.



**U.S. SAVINGS BONDS**  
Paying Better Than Ever

A public service of this publication.

# NOTICE

## TO ALL PLICO-INSURED PHYSICIANS

The 1986 PLICO professional liability insurance policy you received contains a special endorsement or requirement making attendance at an OSMA/PLICO-sponsored Loss Prevention Seminar **mandatory** at least once in every three years. If a physician has never attended a seminar, he or she must attend one during 1986. If a physician has not attended a program since 1983, they must attend this year, also. Any physician needing to attend in 1986, and failing to do so, will not be eligible for renewal of their insurance for calendar year 1987.

## SEMINAR ATTENDANCE MANDATORY

### 1986 Seminar Schedule\*

---

May 10 (OSMA Annual Meeting)	Saturday 8-11 a.m.	Tulsa
May 24	Saturday 2-5 p.m.	Oklahoma City
June 28	Saturday 2-5 p.m.	Woodward
September 10	Wednesday 6-9 p.m.	Lawton
September 17	Wednesday 6-9 p.m.	Muskogee
September 24	Wednesday 6-9 p.m.	McAlester
October 8	Wednesday 6-9 p.m.	Enid
October 15	Wednesday 6-9 p.m.	Oklahoma City
October 16	Thursday 6-9 p.m.	Tulsa

\*All PLICO insureds will receive detailed registration information for each of these seminars by direct mail.

# MEDICAL MALPRACTICE SEMINAR

Presented by the Oklahoma Bar Association and  
The American College of Legal Medicine

## Dates & Locations:

April 11, 1986  
Park Suite Hotel  
Oklahoma City

April 17, 1986  
Sheraton Kensington Hotel  
Tulsa

8:45 - 9:00	<p>Welcome: Susan G. Naifeh, J.D., OBA-CLE Director  Program Chairman: S. Sandy Sanbar, M.D., Ph.D., J.D., ACLM Fellow,  Governor &amp; Secretary  Moderators: Judge Raymond Naifeh and Dr. S. Sandy Sanbar</p>
9:00 - 9:45	<b>Preparing the Malpractice Case</b> . . . . . Robert L. Shepherd, J.D.
9:45 - 10:45	<b>Anesthesia and Surgical Malpractice</b> . . . . . L. Jean Dunegan, M.D., J.D.
10:45 - 11:00	Break
11:00 - 12:00	<p><b>Liabilities for Medical Products &amp; Medical Devices</b>  John D. Hayes, J.D., Kansas City (OKC only)  Dr. S. Sandy Sanbar (Tulsa only)</p>
12:00 - 12:30	Questions and Answers
12:30 - 1:30	Lunch (On your own)
1:30 - 2:30	<b>Organizing Your Evidence</b> . . . . . Larry A. Tawwater, J.D.
2:30 - 2:45	<b>Tort Reform Update</b> . . . . . Larry A. Tawwater, J.D.
2:45 - 3:00	Break
3:00 - 3:45	<p><b>Obtaining and Using Expert Witnesses  From the Plaintiff's Perspective:</b>  James R. Bartimus, J.D., Kansas City (Tulsa only)  John Baum, J.D. (Oklahoma City only)</p>
3:45 - 4:30	<p><b>From the Defendant's Perspective:</b>  Thomas G. Kokoruda, J.D., Kansas City (Tulsa only)  John Wiggins, J.D. (Oklahoma City only)</p>
4:30 - 5:00	<p>Panel Discussion — Questions and Answers</p> <p>Tulsa: Judges . . . . . Dan Boudreau, Tony M. Graham,  Raymond Naifeh, Ronald L. Shaffer,  Jane P. Wiseman, and other speakers</p> <p>Oklahoma City: Judges . . . . . David M. Cook, Leamon Freeman,  James L. Gullett, Raymond Naifeh, and  other speakers</p>

1. Credits: CLE or CME, 7 hours
2. Fee — \$90.00
3. For further information or application please call or write —  
S. Sandy Sanbar, M.D., Ph.D., J.D.  
601 N.W. 11th, Oklahoma City, OK 73102 — Phone (405) 232-5454



# INVESTORS: HAVE YOU CONSIDERED THE ARABIAN HORSE?



*Legendary...*



*Exciting...*



*Cherished*

## A MATCHLESS INVESTMENT

Most investments are quite boring in terms of your involvement with them. Many require blind faith, and may offer an unsteady return for a large fee.

In contrast, an investment in a Windy Meadow Farm Arabian is one you and your family will see, appreciate and enjoy.

And with our reasonably priced program for acquisition, breeding, promotion and marketing, you too can participate in an exciting industry.



24401 N. May Avenue, Edmond, OK 73034  
Phone: (405) 341-3891

- ☐ Please mail literature about the Arabian Horse and Windy Meadow Farm.
- ☐ I would like to be informed of upcoming seminars, clinics and events at Windy Meadow Farm.

NAME: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

CITY/ST. \_\_\_\_\_ ZIP \_\_\_\_\_

PHONE: \_\_\_\_\_

Mail to: Windy Meadow Farm  
24401 N. May  
Edmond, OK 73034

# Protection is our specialty

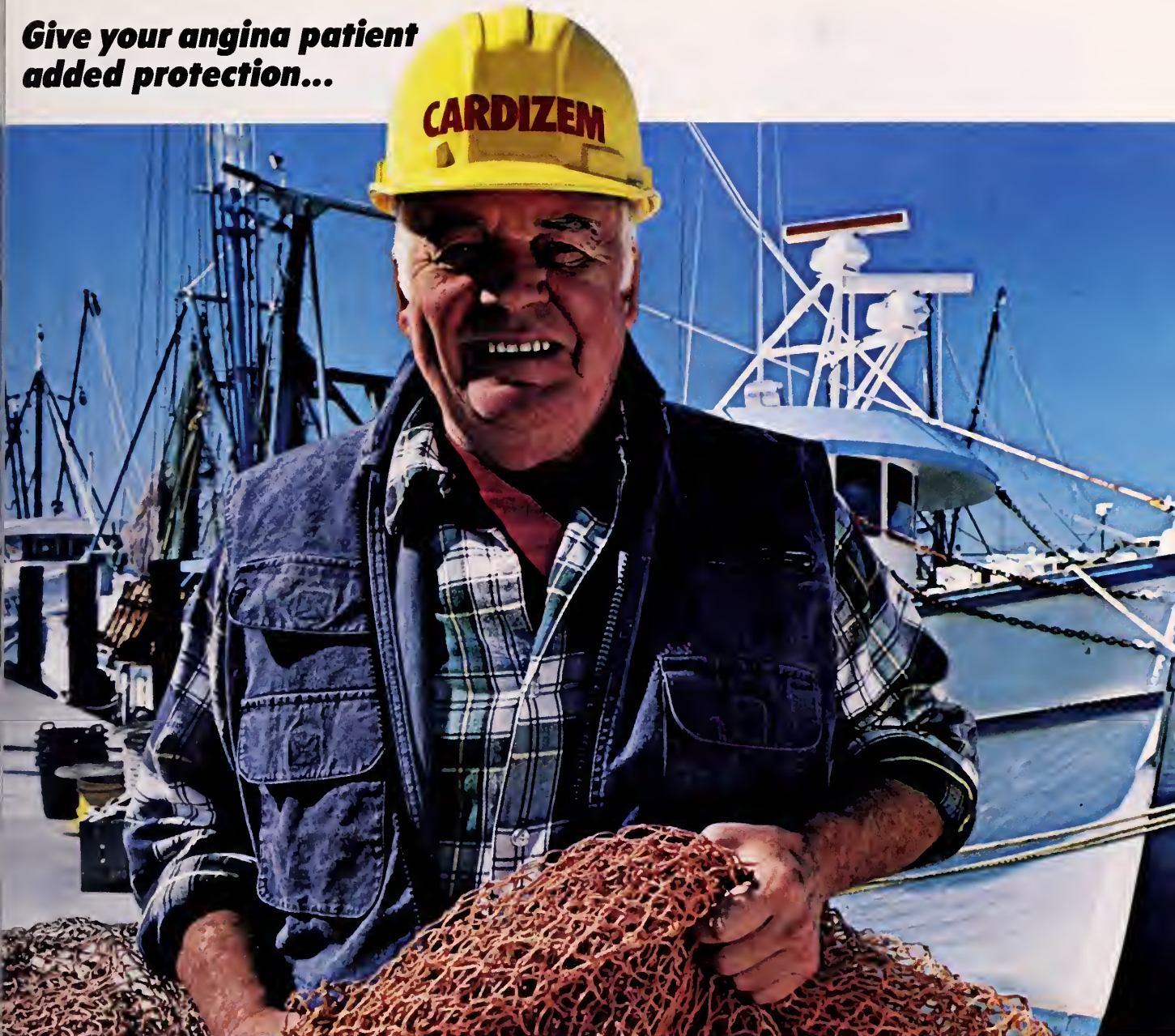
Ninety-eight percent of Oklahoma physicians are protected by Physicians Liability Insurance Company. Doctor-owned PLICO, now presents a convenient comprehensive medical/hospitalization plan, PLICO HEALTH. Designed by doctors, PLICO HEALTH offers the only cost-conscious program created especially to meet the needs of doctors, staff and their families. At your convenience, one of our experienced insurance specialists will gladly provide you with details. For more information about our extensive, new dental plan, please give us a call.



**The Physicians Liability Insurance Company**  
P.O. Box 18171 • Oklahoma City, OK 73154 • 405/524-0801  
1-800/522-9219







**Give your angina patient  
added protection...**



## **CARDIZEM® FEWER SIDE EFFECTS**

*diltiazem HCl/Marion*

-  **The lowest incidence of side effects among the calcium channel blockers<sup>1</sup>**
-  **An exceptionally safe choice for angina patients with coexisting hypertension, diabetes, asthma, or COPD<sup>1-3</sup>**
-  **Proven efficacy when used alone in angina<sup>1, 4-6</sup>**
-  **Compatible with both beta-blockers and nitrates<sup>7</sup>**

*Please see brief summary of prescribing information on the next page.*





# CARDIZEM<sup>®</sup> 60 mg tid or qid

## diltiazem HCl/Marion

### FEWER SIDE EFFECTS IN ANTIANGINAL THERAPY

#### BRIEF SUMMARY

CARDIZEM<sup>®</sup> (diltiazem hydrochloride) is a calcium ion influx inhibitor (slow channel blocker or calcium antagonist).

#### INDICATIONS AND USAGE

**1 Angina Pectoris Due to Coronary Artery Spasm.** CARDIZEM is indicated in the treatment of angina pectoris due to coronary artery spasm. CARDIZEM has been shown effective in the treatment of spontaneous coronary artery spasm presenting as Prinzmetal's variant angina (resting angina with ST-segment elevation occurring during attacks).

**2 Chronic Stable Angina (Classic Effort-Associated Angina).** CARDIZEM is indicated in the management of chronic stable angina. CARDIZEM has been effective in controlled trials in reducing angina frequency and increasing exercise tolerance.

There are no controlled studies of the effectiveness of the concomitant use of diltiazem and beta-blockers or of the safety of this combination in patients with impaired ventricular function or conduction abnormalities.

#### CONTRAINDICATIONS

CARDIZEM is contraindicated in (1) patients with sick sinus syndrome except in the presence of a functioning ventricular pacemaker, (2) patients with second- or third-degree AV block except in the presence of a functioning ventricular pacemaker, and (3) patients with hypotension (less than 90 mm Hg systolic).

#### WARNINGS

**1 Cardiac Conduction.** CARDIZEM prolongs AV node refractory periods without significantly prolonging sinus node recovery time, except in patients with sick sinus syndrome. This effect may rarely result in abnormally slow heart rates (particularly in patients with sick sinus syndrome) or second- or third-degree AV block (six of 1243 patients for 0.48%). Concomitant use of diltiazem with beta-blockers or digitalis may result in additive effects on cardiac conduction. A patient with Prinzmetal's angina developed periods of asystole (2 to 5 seconds) after a single dose of 60 mg of diltiazem.

**2 Congestive Heart Failure.** Although diltiazem has a negative inotropic effect in isolated animal tissue preparations, hemodynamic studies in humans with normal ventricular function have not shown a reduction in cardiac index nor consistent negative effects on contractility (dp/dt). Experience with the use of CARDIZEM alone or in combination with beta-blockers in patients with impaired ventricular function is very limited. Caution should be exercised when using the drug in such patients.

**3 Hypotension.** Decreases in blood pressure associated with CARDIZEM therapy may occasionally result in symptomatic hypotension.

**4 Acute Hepatic Injury.** In rare instances, patients receiving CARDIZEM have exhibited reversible acute hepatic injury as evidenced by moderate to extreme elevations of liver enzymes. (See PRECAUTIONS and ADVERSE REACTIONS.)

#### PRECAUTIONS

**General.** CARDIZEM (diltiazem hydrochloride) is extensively metabolized by the liver and excreted by the kidneys and in bile. As with any new drug given over prolonged periods, laboratory parameters should be monitored at regular intervals. The drug should be used with caution in patients with impaired renal or hepatic function. In subacute and chronic dog and rat studies designed to produce toxicity, high doses of diltiazem were associated with hepatic damage. In special subacute hepatic studies, oral doses of 125 mg/kg and higher in rats were associated with histological changes in the liver which were reversible when the drug was discontinued. In dogs, doses of 20 mg/kg were also associated with hepatic changes; however, these changes were reversible with continued dosing.

**Drug Interaction.** Pharmacologic studies indicate that there may be additive effects in prolonging AV conduction when using beta-blockers or digitalis concomitantly with CARDIZEM. (See WARNINGS.)

Controlled and uncontrolled domestic studies suggest that concomitant use of CARDIZEM and beta-blockers or digitalis is usually well tolerated. Available data are not sufficient, however, to predict the effects of concomitant treatment, particularly in patients with left ventricular dysfunction or cardiac conduction abnormalities. In healthy

volunteers, diltiazem has been shown to increase serum digoxin levels up to 20%.

**Carcinogenesis, Mutagenesis, Impairment of Fertility.** A 24-month study in rats and a 21-month study in mice showed no evidence of carcinogenicity. There was also no mutagenic response in *in vitro* bacterial tests. No intrinsic effect on fertility was observed in rats.

**Pregnancy.** Category C. Reproduction studies have been conducted in mice, rats, and rabbits. Administration of doses ranging from five to ten times greater (on a mg/kg basis) than the daily recommended therapeutic dose has resulted in embryo and fetal lethality. These doses, in some studies, have been reported to cause skeletal abnormalities. In the perinatal/postnatal studies, there was some reduction in early individual pup weights and survival rates. There was an increased incidence of stillbirths at doses of 20 times the human dose or greater.

There are no well-controlled studies in pregnant women; therefore, use CARDIZEM (diltiazem hydrochloride) in pregnant women only if the potential benefit justifies the potential risk to the fetus.

**Nursing Mothers.** It is not known whether this drug is excreted in human milk. Because many drugs are excreted in human milk, exercise caution when CARDIZEM is administered to a nursing woman if the drug's benefits are thought to outweigh its potential risks in this situation.

**Pediatric Use.** Safety and effectiveness in children have not been established.

#### ADVERSE REACTIONS

Serious adverse reactions have been rare in studies carried out to date, but it should be recognized that patients with impaired ventricular function and cardiac conduction abnormalities have usually been excluded.

In domestic placebo-controlled trials, the incidence of adverse reactions reported during CARDIZEM therapy was not greater than that reported during placebo therapy.

The following represent occurrences observed in clinical studies which can be at least reasonably associated with the pharmacology of calcium influx inhibition. In many cases, the relationship to CARDIZEM has not been established. The most common occurrences, as well as their frequency of presentation, are: edema (2.4%), headache (2.1%), nausea (1.9%), dizziness (1.5%), rash (1.3%), asthenia (1.2%), AV block (1.1%). In addition, the following events were reported infrequently (less than 1%) with the order of presentation corresponding to the relative frequency of occurrence:

Cardiovascular	Flushing, arrhythmia, hypotension, bradycardia, palpitations, congestive heart failure, syncope
Nervous System	Paresthesia, nervousness, somnolence, tremor, insomnia, hallucinations, and amnesia
Gastrointestinal:	Constipation, dyspepsia, diarrhea, vomiting, mild elevations of alkaline phosphatase, SGOT, SGPT, and LDH.
Dermatologic.	Pruritus, petechiae, urticaria, photosensitivity
Other.	Polyuria, nocturia.

The following additional occurrences have been noted.

A patient with Prinzmetal's angina experienced episodes of vasospastic angina developed periods of transient asymptomatic asystole approximately five hours after receiving a single 60-mg dose of CARDIZEM.

The following postmarketing events have been reported infrequently in patients receiving CARDIZEM: erythema multiforme, leukopenia, and extreme elevations of alkaline phosphatase, SGOT, SGPT, LDH, and CPK. However, a definitive cause and effect between these events and CARDIZEM therapy is yet to be established.

#### OVERDOSEAGE OR EXAGGERATED RESPONSE

Overdose experience with oral diltiazem has been limited. Single oral doses of 300 mg of CARDIZEM have been well tolerated by healthy volunteers. In the event of overdose or exaggerated response, appropriate supportive measures should be employed in addition to gastric lavage. The following measures may be considered:

Bradycardia	Administer atropine (0.60 to 1.0 mg). If there is no response to vagal blockade, administer isoproterenol cautiously.
-------------	---

High-Degree AV Block

Cardiac Failure

Hypotension

Treat as for bradycardia above. Fixed high-degree AV block should be treated with cardiac pacing.

Administer inotropic agents (isoproterenol, dopamine, or dobutamine) and diuretics.

Vasopressors (eg, dopamine or levarterenol bitartrate).

Actual treatment and dosage should depend on the severity of the clinical situation and the judgment and experience of the treating physician.

The oral LD<sub>50</sub>'s in mice and rats range from 415 to 740 mg/kg and from 560 to 810 mg/kg, respectively. The intravenous LD<sub>50</sub>'s in these species were 60 and 38 mg/kg, respectively. The oral LD<sub>50</sub> in dogs is considered to be in excess of 50 mg/kg, while lethality was seen in monkeys at 360 mg/kg. The toxic dose in man is not known, but blood levels in excess of 800 ng/ml have not been associated with toxicity.

#### OSAGE AND ADMINISTRATION

**Exertional Angina Pectoris Due to Atherosclerotic Coronary Artery Disease or Angina Pectoris at Rest Due to Coronary Artery Spasm.** Dosage must be adjusted to each patient's needs. Starting with 30 mg four times daily, before meals and at bedtime, dosage should be increased gradually (given in divided doses three or four times daily) at one- to two-day intervals until optimum response is obtained. Although individual patients may respond to any dosage level, the average optimum dosage range appears to be 180 to 240 mg/day. There are no available data concerning dosage requirements in patients with impaired renal or hepatic function. If the drug must be used in such patients, titration should be carried out with particular caution.

**Concomitant Use With Other Antianginal Agents:**

- Sublingual NTG** may be taken as required to abort acute anginal attacks during CARDIZEM therapy.
- Prophylactic Nitrate Therapy** — CARDIZEM may be safely co-administered with short- and long-acting nitrates, but there have been no controlled studies to evaluate the antianginal effectiveness of this combination.
- Beta-blockers.** (See WARNINGS and PRECAUTIONS.)

#### HOW SUPPLIED

CARDIZEM 30-mg tablets are supplied in bottles of 100 (NOC 0088-1771-47) and in Unit Dose Identification Packs of 100 (NOC 0088-1771-49). Each green tablet is engraved with MARION on one side and 1771 engraved on the other. CARDIZEM 60-mg scored tablets are supplied in bottles of 100 (NOC 0088-1772-47) and in Unit Dose Identification Packs of 100 (NOC 0088-1772-49). Each yellow tablet is engraved with MARION on one side and 1772 on the other. Issued 4/1/84

See complete Professional Use Information before prescribing.

0642T5

**References:** 1. *Physicians' Desk Reference*, ed 39. Oradell, NJ, Medical Economics Company Inc., 1985. 2. Cohn PF, Braunwald E. Chronic ischemic heart disease, in Braunwald E (ed) *Heart Disease: A Textbook of Cardiovascular Medicine*, ed 2. Philadelphia, WB Saunders Co, 1984, chap 39. 3. Schroeder JS. Calcium and beta blockers in ischemic heart disease. When to use which. *Mod Med* 1982; 50(Sep):94-116. 4. Subramanian VB. Comparative evaluation of four calcium antagonists and propranolol with placebo in patients with chronic stable angina. *Cardiovasc Rev Rep* 1984; 5:91-104. 5. Schroeder JS, Feldman RL, Giles TO, et al. Multicenter controlled trial of diltiazem for Prinzmetal's angina. *Am J Med* 1982; 72:227-231. 6. Weiner OA, McCabe CH, Cutler SS, et al. The efficacy and safety of high-dose verapamil and diltiazem in the long-term treatment of stable exertional angina. *Clin Cardiol* 1985; 7:648-653. 7. Shapiro W. Calcium channel blockers. Actions on the heart and uses in ischemic heart disease. *Consultant* 1984; 24(Dec):150-159.

Another patient benefit product from

**IVI** PHARMACEUTICAL DIVISION  
**MARION**  
LABORATORIES, INC.  
KANSAS CITY, MO 64137

**“POM is a unique service for physicians who want to concentrate on practicing medicine... plus enjoy their spare time.”**

**CONSIDER...**

- Is the cost of your office overhead too high?
- Is your office **always** up to date in billing, filing insurance claims and receiving payments?
- Do you spend too much time and energy with personnel management or attracting and retaining good employees?
- Are you certain you're receiving maximum payment for insurance, Medicare and Medicaid claims?
- Do you have the accurate, current financial data you need to make wise business decisions about your practice?

**“POM is the most logical alternative to medical office management during these changing times in the medical industry.”**



**Professional Office Management**

For more information contact Bob McLauchlin or Jeff Greene

**405/232-7059**

1110 N. CLASSEN BLVD. SUITE 100  
OKLAHOMA CITY, OK 73106





Willow View Hospital is the only private, non-profit hospital in Oklahoma dedicated solely to the treatment of psychiatric illnesses of all types, among all ages.

- 24 Hour Emergency Admissions
- 93 Inpatient Beds
- Outpatient Services
- Designated by the Department of Mental Health as an Examination and Detention Facility for Detention Patients
- Child/Adolescent Programs
- Adult Program
- Senior Adult Program
- Substance Abuse Program

Accredited by JCAH  
as a Child/Adolescent and  
Adult Psychiatric Hospital

Jay T. Shurley, M.D.  
Medical Director

#### MEDICAL STAFF

John C. Andrus, M.D.  
Janita M. Ardis, M.D.  
Nolen Armstrong, M.D.  
Hugh M. Conner, Jr., M.D.  
James A. Cox, M.D.  
Phillip E. Green, M.D.  
A. A. Hellams, M.D.  
Wolfgang K. Huber, M.D.  
R. Murali Krishna, M.D.  
Harald Krueger, M.D.  
Siavash Nael, M.D.  
Robert J. Outlaw, M.D.  
Larry M. Prater, M.D.  
Moorman Prosser, M.D.  
Joe G. Savage, M.D.  
William H. Scimeca, M.D.  
Jay T. Shurley, M.D.  
Harold G. Sleeper, M.D.  
John R. Smith, M.D.  
Bal G. Vad, M.D.  
Sally Varghese, M.D.  
Shreekumar S. Vinekar, M.D.  
Fred W. Weber, M.D.



# WILLOW VIEW HOSPITAL

2601 North Spencer Road 405/427-2441  
P.O. Box 11137  
Oklahoma City, Oklahoma 73136

For information or referral, contact the office  
of the administrator.



**OKLAHOMA CARDIOVASCULAR AND THORACIC SURGERY ASSOCIATES  
THE CARDIAC SURGEONS OF OKLAHOMA CITY, INC.**

**PROFESSIONAL STAFF**

William D. Hawley, MD  
James M. Hartsuck, MD

R. Darryl Fisher, MD  
Marvin D. Peyton, MD  
Scott K. Lucas, MD

Diplomates of  
American Board of Surgery  
American Board of Thoracic and  
Cardiovascular Surgery

Specializing in  
Cardiac, Vascular  
and Thoracic Surgery

Office Hours 8:30 a.m. to 5:00 p.m.  
Monday through Friday  
With 24 Hour Consultation and Referral

**1-800-522-6755**

**(405) 946-0900**

**OFFICES**

3400 N.W. EXPRESSWAY, SUITE 520  
4200 WEST MEMORIAL RD., SUITE 805  
1044 S.W. 44TH, SUITE 520  
1211 NORTH SHARTEL, SUITE 706

OKC, OK 73112  
OKC, OK 73120  
OKC, OK 73109  
OKC, OK 73103



# Timberlawn Psychiatric Hospital

- 206 Inpatient Beds
- Day Hospital
- Outpatient Psychiatric Services
- Department of Child and Adolescent Psychiatry

- Family Assessment Center
  - Psychiatric Residency Program
  - Psychiatric Evaluation
- P.O. Box 11288 Dallas, Texas 75223  
214/381-7181  
Established in 1917



**Specializing in the diagnosis  
and treatment of allergic diseases  
in adults and children.**

MAILING ADDRESS: P.O. Box 26827, Oklahoma City, OK 73126

## MAIN OFFICE

750 Northeast 13th Street  
Near the Oklahoma Health Center  
(2 Blocks East of Lincoln Blvd.)  
Oklahoma City, Oklahoma  
(405) 235-0040

## N.W. OKLAHOMA CITY OFFICE

Mercy Doctors Tower  
4200 W. Memorial Rd., Rm. 112  
Oklahoma City, Oklahoma  
(405) 235-0040

## NORMAN OFFICE

900 North Porter, Suite 600  
Norman, Oklahoma  
(405) 235-0040

George L. Winn, MD†  
Robert S. Ellis, MD†\*  
Lyle W. Burroughs, MD†°  
Charles D. Haunschild, MD†°  
James H. Wells, MD†\*  
John R. Bozalis, MD†\*  
James D. Lakin, PhD, MD†\*  
John S. Irons, MD†°  
Warren V. Filley, MD†\*

Senior Consultants:  
George S. Bozalis, MD  
Vernon D. Cushing, MD†\*

† Diplomate American Board of Allergy and Immunology  
\* Diplomate American Board of Internal Medicine  
° Diplomate American Board of Pediatrics

Administrator:  
G. Keith Montgomery, MHA

Research Director:  
Richard A. Strecker, DrPh

# Shawnee Medical Center Clinic, Inc.

2801 N. SARATOGA / P.O. BOX 849 / SHAWNEE, OKLAHOMA 74801 / Phone: 405-273-5801

## ALLERGY

A. M. Bell, MD\*

## ANESTHESIOLOGY CONSULTANTS

Ellis Brown, MD\*

## DERMATOLOGY

Bert C. Frichot, III, MD\*

## GENERAL SURGERY

Frank H. Howard, MD\*

Jerold D. Kethley, MD

S. B. VanLandingham, MD\*

## INDUSTRIAL MEDICINE

A. M. Bell, MD

Jake Jones, Jr., MD

## INTERNAL MEDICINE

Michael W. Butcher, MD

Merle L. Davis, MD

Larry D. Fetzer, MD

Eldon V. Gibson, MD\*

D. A. Mace, MD

J. B. Jarrell, MD\*

## NEONATOLOGY

R. K. Mohan, MD

## OBSTETRICS, GYNECOLOGY

Dean W. Papageorge, MD

Richard E. Jones, MD\*

Stephen E. Trotter, MD\*

## ORTHOPEDIC SURGERY

T. A. Balan, MD, FAAOS\*

R. M. Kamath, MD, MS\* (Ortho)

S. M. Waingankar, MD, MS\* (Ortho)

## OTORHINOLARYNGOLOGY

S. Rishi, MD\*, MS, FACS

## PATHOLOGY CONSULTANT

David L. McBride, MD\*

## PEDIATRICS

A. M. Bell, MD\*

Jake Jones, Jr., MD\*

R. K. Mohan, MD\*

## RADIOLOGY CONSULTANTS

William Phillips, MD\*

Robert G. Wilson, MD\*

Cranfill K. Wisdom, MD\*

## UROLOGY

N. M. Kotecha, MD\*

## ADMINISTRATOR

W. J. Birney

\* Board Certified

## SOUTHERN PLAINS MEDICAL CENTER INC.

and

### Ambulatory Surgery Facility



## FAMILY PRACTICE

J. W. McDoniel, MD

J. O. Wood, Jr., MD

Stuart J. Meyer, MD

## INTERNAL MEDICINE

W. S. Harrison, MD

D. L. Stehr, MD

R. S. Davis, MD

Don R. Hess, MD

Vernon A. Vix, MD

Randall L. Jenkins, MD

## CARDIOLOGY

J. T. Bledsoe, MD

## GASTROENTEROLOGY

C. K. Su, MD

## PEDIATRICS

R. E. Herndon, MD

E. R. Orr, MD

J. E. Freed, MD

M. P. Escobar, MD

D. F. Haslam, PhD, MD

## OBSTETRICS AND GYNECOLOGY

Nancy W. Dever, MD

Alan J. Weedn, MD

## NEUROLOGY

Andrew Gin, MD

## GENERAL AND VASCULAR SURGERY

Linda M. Johnson, MD

Virginia Harr, MD

Myra Campbell, PA

## THORACIC AND VASCULAR SURGERY

Paul B. Loh, MD

## OPHTHALMOLOGY

John R. Gearhart, MD

## UROLOGY

K. T. Varma, MD

John P. Ross, MD

## ORTHOPEDIC SURGERY

W. T. Morris, MD

Keith W. Riggins, MD

W. M. Ohi, PA

## GENERAL SURGERY AND INDUSTRIAL MEDICINE

C. R. Gibson, MD

## ANESTHESIOLOGY

T. Gowlikar, MD

Gideon Lau, MD

M. M. Vaidya, MD

## PHYSICAL MEDICINE AND REHABILITATION

Kumad Vaidya, MD

## RADIOLOGY (Consulting)

Medical Radiology, Inc.

## CLINICAL PSYCHOLOGY

James M. Ross, PhD

## SPEECH PATHOLOGY

Colette Ellis, MEd, CCC

## ALLERGY

W. S. Harrison, MD

R. E. Herndon, MD

## ADMINISTRATION

James W. Loy

▲ Accredited — Accreditation Association for Ambulatory Health Care, Inc.

## MAIN CLINIC

2222 IOWA, CHICKASHA, OK 224-4853

## TIMBER CREEK OFFICE

ROUTE 3, BOX 124M, TUTTLE, OK 73089





## GLASS-NELSON CLINIC

### INDUSTRIAL MEDICINE

JAMES L. BACON, MD  
GLEN L. BERKENBILE, MD  
GEORGE R. KRIETMEYER, MD  
DONALD W. BOBEK, MD  
THOMAS D. BURNETT, MD

### PRE-EMPLOYMENT

BOB HOWLAND, PA

### PEDIATRICS

HUGH C. GRAHAM, JR., MD  
JOEL K. GIST, MD  
WILLIAM P. SIMMONS, MD

### RADIOLOGY

WILLIAM K. HICKS, MD

### GENERAL SURGERY

ROBERT S. PERRYMAN, MD  
FRANKLIN S. NELSON, MD

### INTERNAL MEDICINE & EXECUTIVE PHYSICALS

WILLIAM F. EWING, MD  
BOYD O. WHITLOCK, MD  
RICHARD H. REID, MD  
R. A. SEARCY, MD  
PHILIP W. PERRYMAN, JR., MD  
KENT A. WOOLARD, MD

### ADMINISTRATION

FRED R. STAFFORD  
GALE CLARK

1923 East 21st Street Box 52218 • TULSA, OKLAHOMA 74152 • PHONE (918) 742-3341

## MULTI-SPECIALTY CLINICAL HEALTHCARE FOR SOUTHEASTERN OKLAHOMA

### INTERNAL MEDICINE

STEVEN D. ATWOOD, M.D.  
CHARLES K. HOLLAND, M.D.  
R. KERN JACKSON, M.D.  
KENNETH R. MILLER, M.D.  
LEROY M. MILTON, M.D.

### GASTROENTEROLOGY

JAMES A. GOLLA, M.D.

### OTOLARYNGOLOGY

DONALD E. CRAWLEY, M.D.  
SAMUEL E. DAKIL, M.D.

### SURGERY

WILLIAM G. BLANCHARD, M.D.  
DAVID MacMILLAN, M.D.

### ALLERGY

PAUL S. THOMAS, M.D.

### PEDIATRICS

DELTA W. BRIDGES, JR., M.D.  
THURMAN SHULLER, M.D.  
PAUL S. THOMAS, M.D.

### RADIOLOGY

BRUCE H. BROWN, M.D.

### FAMILY MEDICINE

JOHN B. COTTON, M.D.  
WILLIAM E. GUPTON, M.D.  
STEPHEN D. SWANK, M.D.  
LARRY D. LEWIS, M.D.

### OBSTETRICS-GYNECOLOGY

ROBERT G. CATES, M.D.  
DAVID L. DOYLE, M.D.  
L. DWAIN DOYLE, M.D.  
W. RILEY MURPHY, JR., M.D.

### ADMINISTRATOR

PAUL BISHOP

# The McAlester Clinic, Inc.

1401 E. VAN BUREN AVE • P.O. BOX 908 • McALESTER OK 74502 • 918 426-0240



# MEDICAL ARTS CLINIC OF ARDMORE, INC.

921 Fourteenth Avenue Northwest  
Ardmore, Oklahoma 73401

## General Surgery

THORNTON KELL, MD, FACS

\*TOM SPARKS, MD, FACS

\*WILFRED S. GAUTHIER, MD, FACS

## Obstetrics and Gynecology

†MICHAEL B. BEASON, MD

## Radiology (Consultants)

\*MICHAEL W. BROWN, MD

\*JAMES A. CHAPMAN, MD

## Pathology (Consultant)

\*CARL A. SCHWEERS, MD

## Internal Medicine

J. HOBSON VEAZEY, MD

\*CLIFFORD LORENTZEN, MD, FACP

\*DAVID D. ROSE, MD

\*JOE R. HAMILL, MD

\*KEVIN H. REED, MD

\*MY Q. TRAN, MD

## Gastroenterology

†MY Q. TRAN, MD

## Administrator

ROGER H. HUGHES

Phone: A/C 405-223-5311

\*Specialty Board Diplomate

†Specialty Board Eligible

# Orthopedic & Arthritis Center

McBRIDE CLINIC, Inc.

1111 North Dewey / Oklahoma City, Oklahoma / 232-0341

## DEPARTMENT OF ORTHOPEDICS

\*Marvin K. Margo, MD, FACS

\*James P. Bell, MD, FACS

\*Stephen Tkach, MD, FACS

\*Joseph F. Messenbaugh III, MD, FACS

\*J. Patrick Evans, MD, FACS

\*Edwin E. Rice, MD, FACS

\*Warren G. Low, MD

\*Thomas C. Howard, III, MD

David H. Holden, MD

## DEPARTMENT OF ARTHRITIS

John A. Blaschke, MD

Mary L. Duffy Honick, MD

\*Richard J. Hess, MD, FACP

\*Jon W. Blaschke, MD

\*R. Eugene Arthur, MD

## DEPARTMENT OF OCCUPATIONAL and INDUSTRIAL MEDICINE

Jack W. Parrish, MD

\*Specialty Board Diplomate

## MANAGEMENT SERVICES

James A. Hyde, Administrator



## ORTHOPEDIC ASSOCIATES, INC.

3301 N.W. 50th  
Oklahoma City, Oklahoma 73112  
(405) 947-0911

David R. Brown, MD  
Ralph E. Payne, Jr., MD  
J. Charles Monnet, MD

David A. Flesher, MD  
Nathan E. Bradley, MD  
Thomas H. Flesher III, MD

Diplomates of American Board of Orthopaedic Surgery

**Sports Medicine  
Arthroscopic Surgery**

**Surgery of the Spine  
Total Joint Replacement**



## THE ARTHRITIS CLINIC

Lloyd G. McArthur, PhD, MD

Winfred L. Medcalf, MD  
Robert C. Troop, PhD, MD

207 C Street NW

Ardmore, Ok. 73401

Phone (405) 223-5180



*A group of laboratories  
affiliated to better serve  
the medical profession*



---

SOUTHERN OKLAHOMA  
PATHOLOGY ASSOCIATES, INC.  
Ada, Oklahoma

---

MEDICAL ARTS LABORATORY  
Oklahoma City, Oklahoma

---

FAIRVIEW PATHOLOGY  
CONSULTANTS, INC.  
Ponca City, Oklahoma

---

SMITHKLINE BIO-SCIENCE  
LABORATORIES  
St. Louis, Missouri

---

PATHOLOGY ASSOCIATES  
OF LAWTON  
Lawton, Oklahoma

---

SOUTHEASTERN MEDICAL  
LABORATORIES, INC.  
McAlester, Oklahoma

---

MIDWEST CITY  
PATHOLOGY, INC.  
Midwest City, Oklahoma

---

PATHOLOGY, INC.  
Stillwater, Oklahoma

---

**MEDICAL ARTS LABORATORY  
BIO-SCIENCE SERVICE CENTERS**

FOR INFORMATION, CALL  
800 / 942-3514 or  
405 / 239-7111

## OKLAHOMA UROLOGY CENTER

CHARLES L. REYNOLDS, JR., MD, INC.

Urology-Genitourinary Surgery  
Diseases Kidney-Bladder-Prostate  
Female-Male Children & Adults  
Micro Surgery for Infertility  
Prosthetic Surgery for Impotency  
Urinary Incontinence

**3131 NORTHWEST EXPRESSWAY  
SUITE 201  
OKLAHOMA CITY, OKLAHOMA 73112**

TOLL FREE (800) 522-8668  
OFFICE (405) 843-5761 RESIDENCE (405) 842-6420  
IF NO ANSWER (405) 523-1999



## Oklahoma Spine/Pain Clinic

Multi-disciplinary approach  
to evaluation and treatment  
of acute or chronic musculoskeletal pain.

William N. Harsha, MD  
Diplomate American Board Orthopaedic Surgery

Doctors Medical Building  
Oklahoma City, Oklahoma 73112  
5700 N.W. Grand Blvd.  
(405) 943-9561

# OKLAHOMA HAND SURGERY CENTER, INC.



Carlos A. Garcia-Moral, MD, FACS

405/232-3210

711 Stanton L. Young Boulevard, Suite 510 Oklahoma City, Ok 73104

## OKLAHOMA LUNG FUNCTION LABORATORY, INC.

R.J. Dougherty, MD

- |  |  |
|--|--|
| <input type="checkbox"/> Oxygen saturation by oximetry<br><i>(To meet Medicare criteria for<br/>continued reimbursement for home<br/>oxygen use)</i> | <input type="checkbox"/> Clinical spirometry     |
| <input type="checkbox"/> Arterial blood gas analysis   | <input type="checkbox"/> Lung volumes            |
|  | <input type="checkbox"/> Diffusing capacity      |
|  | <input type="checkbox"/> Diagnostic skin testing |

235-3338

1111 North Lee, Pasteur Building 224

235-1701

## CENTRAL OKLAHOMA AMBULATORY SURGICAL CENTER, INC.

W. Edward Dalton, MD, FACS    Paul Silverstein, MD, FACS    J. Michael Kelly, MD, FACS  
Plastic, Reconstructive & Cosmetic Surgery; Surgery of the Hand & Congenital Deformities;  
Oncologic Surgery of the Head and Neck, Burn Surgery

3301 Northwest 63rd Street, Oklahoma City, Okla. 73116  
(405) 946-0731

Board Certified in Plastic Surgery  
Board Certified in General Surgery

### AEROSPACE MEDICINE

CLYDE A. LYNN, BA, MPH, MD  
Board Certified, Aerospace Medicine  
Fellow, American College of Preventive Medicine  
Flight Surgeon, US Army and Navy  
Commercial Pilot and Flight Instructor, Instrument and Multi-engine  
Referrals for Medical Certification of Pilots Accepted  
by Appointment

1317 Brookhaven Blvd.  
Norman, OK 73069

Senior Aviation Examiner  
FAA NO. 07448-1

(405)  
329-2625

### ALLERGY

Northwest Medical Center

NORTHWEST ALLERGY CLINIC, INC.

Suite 602

John L. Davis, M.D.  
3330 N.W. 56th  
Oklahoma City, Oklahoma 73112  
405 843-6619

JAMES A. MURRAY, MD, INC.  
Diagnosis and Treatment of Allergic Diseases  
Adults and Children

JAMES A. MURRAY, MD  
Fellow American Academy of Allergy  
Fellow American College of Allergists  
Diplomate American Board of Allergy and Immunology

Suite 101 6465 South Yale Avenue  
Warren Professional Building (918) 492-0484  
Tulsa, Oklahoma 74177

OKLAHOMA ALLERGY CLINIC, INC.  
Specializing in the Diagnosis and Treatment of Allergic Disease

George L. Winn, MD†	John R. Bozalis, MD†*
Robert S. Ellis, MD†*	James D. Lakin, PhD, MD†*
Lyle W. Burroughs, MD†°	John S. Irons, MD†°
Charles D. Haunschild, MD†°	Warren V. Filley, MD†*
James H. Wells, MD†*	

Senior Consultants: George S. Bozalis, MD; Vernon D. Cushing, MD†\*

† Diplomate American Board of Allergy and Immunology

\* Diplomate American Board of Internal Medicine

° Diplomate American Board of Pediatrics

Office Address:	Mail Address:	NW OKC Office:	Norman Office:
750 NE 13th St	PO Box 26827	4200 W Memorial	900 N Porter
Okla City, OK	Okla City	Room 112	Suite 600
405-235-0040	OK 73126	405-235-0040	405-235-0040

## CARDIOVASCULAR

### CARDIOVASCULAR ASSOCIATES

Adult Cardiovascular Diseases

Cardiac Catheterization, Aortography and Selective Coronary Arteriography

Coronary and Peripheral Angioplasty

Telephone Electrocardiography (24 hr. service), Treadmill

Effort Tolerance, Hypertensive Evaluation

\*J.J. Donnell, MD 947-2556 \*G.L. Honick, MD 943-8428

\*J.L. Bessie, MD 946-0568 A.F. Elliott, MD 943-8421

A.S. Dahr, MD 947-2321 Gary Worcester, MD 943-4134

\*Jan Voda, MD 947-1297 Stanley A. Horst, MD 946-0606

\*Certified by the American Board of Cardiovascular Disease  
Doctors Medical Building

8th Floor 5700 N.W. Grand Blvd. Oklahoma City, Oklahoma 73112

### CARDIOVASCULAR CLINIC

Wm. Best Thompson, MD	Ronald H. White, MD	W.H. Oehlert, MD
Galen P. Robbins, MD	William J. Fors, MD	Charles F. Bethea, MD
Williams S. Myers, MD		Fred E. Lybrand, MD
Lawrence M. Higgs, MD		Mel Clark, MD

### CARDIOVASCULAR DISEASES

Cardiac catheterization, aortography and coronary arteriography

Coronary and Peripheral angioplasty, telephone electrocardiography

and echocardiography

Nuclear cardiology and Treadmill effort tolerance

### CARDIOVASCULAR BUILDING

3300 Northwest 56th Oklahoma City, Okla. 73112 Telephone 947-3341

## DERMATOLOGY

RONALD W. GILCHRIST, JR., MD  
Diseases and Malignancies of the Skin  
X-Ray and CO<sub>2</sub> Laser Therapy

Oklahoma City, 632-5565  
OK 73109 3500 South Western

### SKIN & SKIN CANCER CENTER, INC.

C. Jack Young, MD

Radium Therapy Hemangiomas X-Ray Therapy

CLINIC BUILDING 3434 N.W. 56th  
OKLAHOMA CITY, OKLAHOMA 946-5678

## ENDOCRINOLOGY - METABOLISM - DIABETES

JOHN WHITFIELD DRAKE, MD  
Diplomate American Board of Internal Medicine in Endocrinology  
Langston Medical Clinic, Inc. / 842-8655

3200 W. Wilshire Blvd. Oklahoma City, Oklahoma 73116

## OPHTHALMOLOGY

JAMES L. DUNAGIN, JR., MD  
Diseases and Surgery of the Eye  
Diplomate American Board of Ophthalmology  
6th and Washington 918-426-1432 McAlester, Oklahoma 74501

John W. Huneke, MD, FACS, Inc.  
Diseases and Surgery of the Eye  
Certified by the American Board of Ophthalmology  
Phone 332-1880 1414 Arlington Suite 2300 Ada, Oklahoma 74820

JAMES B. MILLS, MD 232-4222

Surgery and Diseases of the Eye

JAY C. JOHNSTON, MD 232-5543

Lacrimal Surgery, Dacryocystorhinostomy, Jones Tubes

Certified by the American Board of Ophthalmology  
425 NW 11th Street Oklahoma City 73103

V. JERRY SHEPERD, MD  
Diseases and Surgery of the Eye  
Certified by the American Board of Ophthalmology  
3400 N.W. 56th St. Suite G-2 Phone 946-3327 Oklahoma City 73112

## ORTHOPEDICS

### DUNCAN REGIONAL ORTHOPAEDIC ASSOCIATES, INC.

THOMAS J. EISER, MD

ROBERT M. SIMPSON, MD

ORTHOPAEDIC SURGERY & SURGERY OF THE HAND

DIPLOMATES AMERICAN BOARD OF ORTHOPAEDIC SURGERY

FELLOWS, AMERICAN ACADEMY OF ORTHOPAEDIC SURGEONS

2815 W. Elk  
OFFICE (405) 252-3400 DUNCAN, OKLAHOMA 73533

### ORTHOPEDIC SURGERY AFFILIATES, INC.

1044 S.W. 44th  
Oklahoma City, Oklahoma 73109  
405-631-7444

Dale R. Butler, MD, FACS G. David Casper, MD  
J.A. Rosacker, MD

HOUSHANG SERADGE, MD, FICS  
Diplomate American Board of Orthopaedic Surgery  
Hand and Reconstructive Microsurgery

1044 S.W. 44th Street, Suite 620  
Oklahoma City, Oklahoma 73109  
Phone (405) 631-4263

Professional card listings are available to  
OSMA members. They are sold in vertical in-  
crements of one-half inch at the rate of \$50.00  
per half inch per year.



## ORTHOPEDICS (continued)

JOHN RAYMOND STACY, MD, FACS  
Diplomate American Board of Orthopedic Surgery  
Orthopedic and Fracture Surgeon  
415 N.W. 12th St. Oklahoma City, Oklahoma 235-6315

## OTOLARYNGOLOGY HEAD AND NECK SURGERY

Oklahoma Otolaryngology Associates  
RAYMOND O. SMITH, JR., MD, FACS  
Head and Neck Surgery  
Facial Plastic and Reconstructive Surgery  
4200 West Memorial Road, Suite 606  
Oklahoma City, Oklahoma 73120  
Phone 405 755-1930

## PEDIATRIC SURGERY

E. IDE SMITH, MD\* WM. P. TUNELL, MD\* DENNIS J. HOELZER, MD\*

940 NE 13th Street, Oklahoma City, Oklahoma 73104  
Office: 405-271-4356 After hours: 405-523-6739 (then enter your phone no.)  
\*American Board of Surgery — Special Competence in Pediatric Surgery

## PSYCHIATRY

LARRY PRATER, MD  
Practice Limited to Psychiatry  
Suite 318 Classen Professional Bldg. 232-5453/272-7155  
1110 Classen Boulevard Oklahoma City, Oklahoma 73106

PSYCHIATRY  
Robert J. Outlaw, MD, FAPA  
R. Murali Krishna, MD, MAPA  
Diplomates of American Board of Psychiatry and Neurology in Psychiatry  
Shree S. Vinekar, MD, FAACP  
Diplomate of American Board of Psychiatry and Neurology  
in Psychiatry and Child Psychiatry  
John C. Andrus, MD, MAPA  
Thurman E. Coburn, PhD, Licensed Clinical Psychologist  
Philip J. Murphy, PhD, Licensed Clinical Psychologist  
David Schwartz, ACSW, Clinical Psychiatric Social Worker  
Suite 308 Physicians and Surgeons Building  
1211 North Shartel, Oklahoma City 73103  
(405) 272-0734

JAY TALMADGE SHURLEY, MD  
Life Fellow, American Psychiatric Association;  
Charter Fellow, American College of Psychiatrists  
Emeritus Professor of Psychiatry & Behavioral Sciences  
University of Oklahoma College of Medicine  
Consultant in Neuropsychiatry, SLEEP DISORDERS CENTER, Presbyterian Hospital

Diagnosis, Management & Treatment of  
DISORDERS OF SLEEPING, WAKING, & DREAMING  
(Emphasis on Narcolepsy, Sleep Walking, Nightmares)

6406 "A" North Santa Fe  
Oklahoma City, OK 73116 (405) 840-3793

HAROLD G. SLEEPER, MD, FAPA  
Diplomate American Board of Psychiatry  
and Neurology in Psychiatry  
Adult and Adolescent Psychiatry  
2801 Parklawn Drive, Suite 505  
Midwest City, Oklahoma 73110  
(405) 733-8244

## PULMONARY DISEASE

PULMONARY ASSOCIATES  
STEPHEN N. ADLER, MD TIMOTHY L. GRODE, MD  
Diplomates  
American Board of Internal Medicine  
American Board of Internal Medicine - Pulmonary Disease

Pulmonary Medicine  
Pulmonary Function and Methacholine Testing  
Pulmonary Artery (Swan-Ganz) Catheterization  
Fiberoptic Bronchoscopy  
Lung Needle Biopsy  
Critical Care Medicine  
Mercy Doctors Tower  
Oklahoma City, OK 73120  
4200 Memorial Road  
(405) 755-4290

RAYMOND J. DOUGHERTY, MD  
Diplomate American Board of Pulmonary Disease  
Practice Limited to Pulmonary Disease

Special Interest in Adult and Adolescent Asthma

204 Pasteur Building  
Oklahoma City, Oklahoma 73103  
235-1701

NORMAN K. IMES, MD  
DENNIS M. PARKER, MD  
Diplomates American Board of Internal Medicine  
American Board of Internal Medicine - Pulmonary Disease  
Consultants in Diseases of the Chest  
Fiberoptic Bronchoscopy  
Pulmonary Function Evaluation  
Intensive Care Medicine

3330 N.W. 56 Street  
Oklahoma City, Oklahoma 73112  
(405) 949-9400

## RADIOLOGY

CHET BYNUM, MD GLENNA YOUNG, MD

DIAGNOSTIC RADIOLOGY  
Fluoroscopy  
Xeromammography  
Tomography  
Ultra Sonography  
WHOLE BODY CT SCANNING

13301 N. Meridian Bldg. 300  
Oklahoma City, Oklahoma 73120  
(405) 752-0186  
1125 N. Porter  
Norman, Okla. 73071  
(405) 364-1071

RADIOLOGY ASSOCIATES, INC.  
JAMES T. BOGGS, MD  
ROBERT SUKMAN, MD, FACR  
WILLIAM R. ALBRACHT, MD  
ROGER B. COLLINS, MD  
GEORGE BEN CARTER, MD  
RICHARD B. PRICE, MD, FACR, DABNM  
MICHAEL A. SARTIN, MD  
RALF E. TAUPMANN, MD  
GARY G. ROBERTS, MD  
JOHN R. OWEN, MD  
HAROLD D. DAVIDSON, MD  
JAY A. HAROLDS, MD, DABNM

Diplomates American Board of Radiology  
X-Ray-Diagnosis including Ultra Sonography, Xeromammography,  
Radiation Therapy — Nuclear Medicine — CAT Scanning  
Digital Subtraction

204 Medical Tower Bldg. 848-7741  
400 Physicians Prof. Bldg. 943-9646  
700 Doctors Medical Bldg. 946-9923  
Baptist Medical Center 949-3202  
Deaconess General Hospital 946-5581  
206 N.W. Med. Ctr. Bldg. 946-8999

RADIOLOGIC SPECIALTIES, LTD  
4045 Northwest 64th Street, Suite 125  
Oklahoma City, Oklahoma 73116

Practice Limited To Whole Body CT Scanning

V.C. Tisdal III, MD (405) 848-0075 Rebecca Goen Tisdal, MD

Diplomates American Board of Radiology

## SURGERY

James E. Cheatham, Jr., MD  
3400 N.W. Expressway, Suite 607  
Oklahoma City, OK 73112  
948-7272  
Specializing in Open Heart Surgery

ROBERT B. HOWARD, MD, FACS  
Certified American Board of Surgery  
Practice Limited to General Surgery and Diseases of the Thyroid Gland  
544 Pasteur Medical Bldg. Phone 235-2341 Oklahoma City

MICHAEL E. REIF, MD  
Diplomate American Board of Surgery  
Fellow American College of Surgery  
General and Peripheral Vascular Surgery  
708 Mercy Doctors Tower By Appointment 755-1750  
4200 West Memorial Road Oklahoma City, OK 73120 After Hours 232-8861

## SURGERY, COLON AND RECTAL

ROBERT J. CAPEHART, MD  
2325 South Harvard Suite 306  
Tulsa, Oklahoma 74114  
(918) 744-5817  
Practice Limited To Colon & Rectal Surgery and Colonoscopy

## SURGERY, HAND

Patrick T. Sterbank, PA  
Physician Associate  
HOUSHANG SERADGE, MD, FICS  
Diplomate American Board of Orthopaedic Surgery  
Hand and Reconstructive Microsurgery  
1044 S.W. 44th Street, Suite 620  
Oklahoma City, Oklahoma 73109  
Phone (405) 631-4263 631-HAND

## SURGERY, RECONSTRUCTIVE AND PLASTIC

PARAMJIT S. BAJAJ, MD, FACS  
FRCS (England), FRCS (Edinburgh)  
Certified American Board of Plastic Surgery  
Maxillofacial and Cosmetic Surgery  
Surgery of the Hand  
1110 N. Classen Blvd. Suite 304 235-6671  
Oklahoma City, Okla. 73106

LEONARD H. BROWN, MD  
Diplomate American Board of Surgery  
Diplomate American Board of Plastic Surgery  
Plastic and Reconstructive Surgery  
Cosmetic Surgery  
6913 S. Canton Tulsa, Oklahoma 74136 492-3964

WILLIAM J. FORREST, MD

Plastic and Reconstructive Surgery  
Surgery of the Hand  
3400 N.W. Expressway Oklahoma City 947-8760

HERBERT M. KRAVITZ, MD, FACS

Diplomate American Board of Plastic Surgery  
Reconstructive, Cosmetic and Cleft Palate Surgery  
Office (405) 946-2694 2620 Northwest Expressway  
Oklahoma City, Oklahoma

## UROLOGY

GENE T. BAUMGARNER, MD, FACS  
Diplomate of the American Board of Urology  
Mercy Doctors Tower  
4200 West Memorial Road  
Oklahoma City, Oklahoma 73120 (405) 755-3723

A. de QUEVEDO, MD, Inc.  
Diplomate of the American Board of Urology  
Suite 606  
1211 N. Shartel Oklahoma City, Oklahoma 73103 232-1333

PHILIP D. DIGGDON, MD, FACS  
Diplomate of the American Board of Urology  
312 Warren Prof. Bldg, 6465 S. Yale, Tulsa, OK  
Office: (918) 492-6322 Home: (918) 492-1143  
Same day service  
2801 Parklawn Dr., #300 CLARK HYDE, MD 1110 N. Classen, #205  
Pediatric and Adult Urology  
Midwest City, OK 73110 Oklahoma City, OK 73106  
(405) 737-5667 (405) 232-0273

BARNEY J. LIMES, MD, FACS  
1211 N. Shartel, Suite 208  
Oklahoma City, Okla. 73101  
Phone 235-0315  
2801 Parklawn Dr., Suite 300  
Midwest City, Okla. 73110  
Phone 737-3538  
Practice Limited to Urology  
Diplomate American Board of Urology

JOSEPH D. PARKHURST, MD, FACS  
Diplomate American Board of Urology  
2345 N. Tompkins  
Bethany, OK 73008 495-6134

CHARLES L. REYNOLDS, JR., MD, FACS, FICS  
DIPLOMATE of the AMERICAN BOARD OF UROLOGY  
DISEASES of the KIDNEY, BLADDER, and PROSTATE

3131 NORTHWEST EXPRESSWAY  
OKLAHOMA CITY, OKLAHOMA 73112  
OFFICE (405) 843-5761

RESIDENCE (405) 842-6420 IF NO ANSWER (405) 523-1999

1110 Classen Blvd. JAMES R. WENDELKEN, MD 2801 Parklawn  
Oklahoma City, OK Pediatric and Adult Urology Midwest City, OK  
73106 Telephone (405) 232-0273 73110

PHILLIP H. WINSLOW, MD, FACS  
Diplomate American Board of Urology  
Hours by Appointment Medical Plaza  
(405) 765-7620 123 Patton Drive  
Answering Service: (405) 765-5826 Ponca City, OK 74601

**Professional card listings are available to  
OSMA members. The cards are sold in ver-  
tical increments of one-half inch at the  
rate of \$50.00 per half inch per year.**

## INDEX TO ADVERTISERS

Allied Nursing Care .....	150
Alpha Therapeutic Corporation .....	178
American Medical International .....	144
The Arthritis Clinic .....	202
Burroughs Wellcome ( <i>Wellbutrin</i> ) .....	145
The Cardiac Surgeons of Oklahoma City, Inc. ....	197
Central Oklahoma Ambulatory Surgical Center, Inc. ....	204
Copper Lake .....	142
Curtis 1000 Information Systems .....	146
Dista Products ( <i>Keflex</i> ) .....	185
Edmond Medical Plaza .....	181
C. L. Frates & Co., Inc. ....	179
Glass-Nelson Clinic .....	200
Harsha Orthopedic, Inc. ....	203
Knoll Pharmaceutical Company ( <i>Isoptin</i> ) ...	186-188
Marion Laboratories ( <i>Cardizem</i> ) .....	193, 194
McAlester Clinic .....	200
Medical Arts Clinic of Ardmore .....	201
Medical Arts Laboratory .....	203
James B. Morris II & Associates .....	183
Oklahoma Allergy Clinic .....	198
Oklahoma Bar Association and American College of Legal Medicine .....	190
Oklahoma City Clinic .....	IFC
Oklahoma Hand Surgery Center, Inc. ....	204
Oklahoma Lung Function Laboratory .....	204
Oklahoma Urology Center .....	203
Orthopedic & Arthritis Center .....	201
Orthopedic Associates .....	202
PLICO Health .....	192
PLICO Loss Prevention Seminars .....	189
Prodata Medical Systems .....	141
Professional Office Management .....	195
Rehabilitation Institute of Oklahoma .....	172
Roche Products, Inc. ( <i>Dalmane</i> ) .....	IBC, BC
RTS .....	177
Shawnee Medical Center Clinic, Inc. ....	199
SmithKline & Beckman ( <i>Dyazide</i> ) .....	147
Southern Plains Medical Center, Inc. ....	199
Stillwater National Bank .....	149
Timberlawn Psychiatric Hospital .....	198
Tulsa Adjustment Bureau, Inc. ....	171
The Upjohn Company ( <i>Motrin 800</i> ) .....	148
VA Medical Center, Muskogee .....	180
G. D. Williamson, MD .....	174, 176
Willow View Hospital .....	196
Windy Meadow Farm .....	191



## OFFICERS of the OKLAHOMA STATE MEDICAL ASSOCIATION

Elvin M. Amen, MD, President;  
Norman L. Dunitz, MD, President-Elect;  
M. Joe Crosthwait, MD, Vice-President; Ray L. Cornelison, Jr., MD,  
Secretary-Treasurer; Larry L. Long, MD, Speaker, House of Delegates;  
Robert G. Perryman, MD, Vice-Speaker, House of Delegates; Michael  
J. Haugh, MD, Chairman, Board of Trustees; and James B. Eskridge  
III, MD, Immediate Past President.

## INSTRUCTIONS FOR AUTHORS

### Contributions

Articles submitted for publication, including Annual Meeting papers, become the sole property of the JOURNAL and must not have been published elsewhere. The Editorial Board reserves the right to edit any material submitted. Manuscripts must be typewritten, double-spaced, and submitted in duplicate. Receipt of manuscripts will be acknowledged, and unpublished manuscripts will be returned. The JOURNAL does not assume responsibility for the statements or opinions of any contributor.

### Style

All manuscripts should adhere to the style adopted by the American Medical Association as illustrated in *JAMA* and detailed in the AMA's *Manual for Authors & Editors*. Footnotes, bibliographies, and legends for illustrations should be typewritten, double-spaced, on separate sheets. References are to be listed in the order of their appearance in the article.

### Illustrations

Illustrations other than the author's will not be accepted for publication unless accompanied by written permission from the original source. Illustrations should be labeled with the author's name and must be numbered in the order in which they are referred to in the article. The quality of all illustrations must be in keeping with the quality of the magazine.

### News

Readers are encouraged to submit news items of interest to Oklahoma physicians. Where dates of meetings, etc., are important, please remember that each issue closes on the first day of the *preceding* month and reaches subscribers in the latter half of the month of publication.

### Reprints

Authors will receive reprint order forms from the Transcript Press, 222 East Eufaula, Norman, Oklahoma 73069, prior to publication of their articles. Other requests for reprints must be made to the Transcript Press within 30 days after publication.

### Back Issues

Microfilm copies of back issues of the JOURNAL can be purchased from University Microfilms International, 300 North Zeeb Road, Ann Arbor, Michigan 48106.



Every year on March 30, we honor physicians by celebrating Doctors Day. It is an opportunity for us to express our gratitude for the many hours of hard work physicians devote to their profession. Missing birthdays, ball games, recitals, and a multitude of social occasions are an accepted part of their profession. The added burden of outside influences trying to legislate medical practice and procedures creates more stress and paperwork for an already busy physician.

We have been celebrating Doctors Day for fifty-one years. March 30 was selected as Doctors Day in tribute to Dr Crawford Long, who first administered ether on March 30, 1842, during a surgical procedure. Physicians are constantly striving to provide comfortable and effective care for their patients. It is appropriate that Dr Long is so honored because the use of ether as an anesthetic was a breakthrough for modern medicine. Patients were able to survive surgery without enduring agonizing pain.

The official symbol of Doctors Day is the red carnation. Most communities use the carnation in their celebration. By presenting a carnation to each physician we are saying "thank you" for all the time, love, and concern you have given your patients. Every doctor should proudly wear a carnation in his lapel — he deserves the recognition of his special day.

The members of the Oklahoma State Medical Association Auxiliary have been very creative in their Doctors Day celebrations. Imaginative dinners, wine-tasting parties, a health fair, blood drives, newspaper articles, mayoral proclamations, and donations to hospitals or health-care related fields have all been successful. A most innovative idea has been to plant a tree in honor of physicians, symbolizing the continuous growth of new ideas, techniques, and procedures in the field of medicine. A living tree not only honors physicians, but celebrates life and provides comfort and beauty to all who view it.

We as auxiliaries are aware of the dedication of each of our spouses. We know that physicians are multifaceted people. They care deeply about their patients, but they also care about their families, friends, and communities. They strive to provide emotional and financial support for loved ones and those in need. Let us be sure that each physician in Oklahoma knows how much we appreciate his or her contribution to the welfare of mankind.

— Jan Craig  
State Doctors Day Chairman

## THE LAST WORD

■ **PLICO's third 55-minute cassette on professional liability loss prevention** is now available for distribution. The tape, narrated by Ed Kelsay, OSMA legal counsel and PLICO's loss prevention manager, is designed primarily for allied health care personnel, such as physician's assistants, medical assistants, nurses, and respiratory therapists. The purpose is to help these people help the physician and/or hospital avoid medical-legal problems. Physicians, hospital administrators, and clinic managers may order complimentary copies of the tape for their staffs, but are asked to order only one tape for every five individuals because of the limited quantity available. Tapes may be ordered from the OSMA, 601 Northwest Expressway, Oklahoma City, OK 73118. Orders for more than five tapes should be directed to Ed Kelsay.

■ **Retired physicians are invited to join the members of the Retired Doctors Club** at their monthly luncheon meeting at Baptist Hospital in Oklahoma City. For information about the meetings, programs, and/or membership, contact Hervey A. Foerster, MD, 1503 Camden Way, Oklahoma City, OK 73116, or Philip G. Tullius, MD, 6206 Waterford Boulevard, Oklahoma City, OK 73118, (405) 843-0639.

■ **The annual meeting of the Oklahoma State Dermatologic Society** will be held in Oklahoma City, May 3-4, 1986. Also announced are the society's officers for 1985-86: Nancy L. Dawson, MD, Oklahoma City, president, and Euan McMillan, MD, Oklahoma City, secretary. Dr Dawson is a 1973 graduate of the University of Missouri School of Medicine in Columbia, and Dr McMillan is a 1975 graduate of the Faculty of Medicine University of Edinburgh, Scotland. For information about the meeting contact Dr Dawson at 1117 North Shartel, Suite 402, Oklahoma City, OK 73103, (405) 235-4421.

■ **The American Medical Association, in cooperation with the Illinois State Medical Society,** will sponsor its 7th National Conference on the Impaired Physician April 11-13, 1986, at the Hilton Hotel and Towers in Chicago. The theme of the conference is Impairment and Well-Being of Health Professionals: A Family Affair. Persons wishing registration or program information should contact Janice Robertson at (312) 645-5079.

■ **The Oklahoma Medical Group Management Association** has announced that its 1986 spring meeting will be April 25 in Tulsa. Plans are being made

for a full day of seminars, with topics of importance to both clinic managers and physicians. The main speaker will be Gary Adamson, a consultant in marketing and communications for the healthcare industry. Further information is available from Winora Quarles, Tulsa X-Ray Laboratory, 3010 South Harvard, #236, Tulsa, OK 74114.

■ **Reporter James B. Eskridge III, MD,** immediate past president of the OSMA, filed the following story at the JOURNAL office last month:

Probably the first prediction of the 1986 Orange Bowl results occurred in Washington, DC, where the self-styled poet laureate and chief prognosticator of the OSMA delegation, Ed L. Calhoon, MD, delegate of Beaver, addressed the AMA House of Delegates, in session on December 11, 1985, as follows: "Ode to the Nittany Lion" — One mouth will be defanged, / Great neck shall come unmaned, / Huge paws will be declawed, / Proud tail be madly mauled! / Now, this I'm here to say . . . / OU is A-OK!! The Pennsylvania delegation response was lost in the considerable applause and laughter following Delegate Calhoon's studied presentation.

■ **A study from McLean Hospital in Belmont, Mass,** suggests that strict adherence to dosage guidelines will decrease the incidence of seizures associated with use of maprotiline hydrochloride, a second generation antidepressant introduced in the United States in 1981. "Maprotiline is an effective antidepressant, as effective as the standard tricyclics, and perhaps less likely to cause other adverse reactions," observe Eric C. Dessain, MD, and colleagues in the *Archives of General Psychiatry*. Their study suggests that seizure rates can be cut in half by, among other things, never exceeding a dosage level of 225 mg per day.

■ **The incidence of infection among burn patients** was reduced by half when patients were placed in an intensive care unit with separate bed enclosures, researchers report in the *Archives of Surgery*. LTC Khan Z. Shirani, MC, USA, and colleagues from Fort Sam Houston, Texas, say they placed one cohort of 173 burn patients in a traditional intensive care unit while a second group of 213 was placed in a unit with bed enclosures. "The incidence of infected patients was reduced from 58.1% in the early cohort to 30.4% in the late cohort," they say. "The overall proportion of patients with bacteremia was reduced from 20.1% to 9.4%," they add. □



EXCERPTS FROM A SYMPOSIUM  
"THE TREATMENT OF SLEEP DISORDERS"<sup>8</sup>

“... highly effective  
for both sleep induction and  
sleep maintenance”

Sleep Laboratory Investigator  
Pennsylvania

“... onset of action is  
rapid... provides sleep with  
no rebound effect to agitate the  
patient the following day”

Psychiatrist  
California

“... appears to have  
the best safety record of any  
of the benzodiazepines”

Psychiatrist  
California

After 15 years, the experts still concur about the continuing value of Dalmane (flurazepam HCl/Roche). It provides sleep that satisfies patients... and the wide margin of safety that satisfies you.

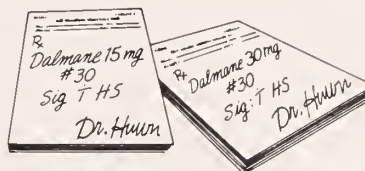
The recommended dose in elderly or debilitated patients is 15 mg. Contraindicated in pregnancy.

**DALMANE<sup>®</sup>**  
flurazepam HCl/Roche<sup>®</sup>  
**sleep that satisfies**

15-mg/30-mg  
capsules



**References:** 1. Kales J, et al. *Clin Pharmacol Ther* 12:691-697, Jul-Aug 1971. 2. Kales A, et al. *Clin Pharmacol Ther* 18:356-363, Sep 1975. 3. Kales A, et al. *Clin Pharmacol Ther* 19:576-583, May 1976. 4. Kales A, et al. *Clin Pharmacol Ther* 32:781-788, Dec 1982. 5. Frost JD Jr, DeLucchi MR. *J Am Geriatr Soc* 27:541-546, Dec 1979. 6. Dement WC, et al. *Behav Med*, pp 25-31, Oct 1978. 7. Kales A, Kales JD. *J Clin Psychopharmacol* 3:140-150, Apr 1983. 8. Tennant FS, et al. Symposium on the Treatment of Sleep Disorders, Teleconference, Oct 16, 1984. 9. Greenblatt DJ, Allen MD, Shader RI. *Clin Pharmacol Ther* 21:355-361, Mar 1977.



**DALMANE<sup>®</sup>**  
flurazepam HCl/Roche<sup>®</sup>

Before prescribing, please consult complete product information, a summary of which follows:

**Indications:** Effective in all types of insomnia characterized by difficulty in falling asleep, frequent nocturnal awakenings and/or early morning awakening, in patients with recurring insomnia or poor sleeping habits, in acute or chronic medical situations requiring restful sleep. Objective sleep laboratory data have shown effectiveness for at least 28 consecutive nights of administration. Since insomnia is often transient and intermittent, prolonged administration is generally not necessary or recommended. Repeated therapy should only be undertaken with appropriate patient evaluation.

**Contraindications:** Known hypersensitivity to flurazepam HCl, pregnancy. Benzodiazepines may cause fetal damage when administered during pregnancy. Several studies suggest an increased risk of congenital malformations associated with benzodiazepine use during the first trimester. Warn patients of the potential risks to the fetus should the possibility of becoming pregnant exist while receiving flurazepam. Instruct patients to discontinue drug prior to becoming pregnant. Consider the possibility of pregnancy prior to instituting therapy.

**Warnings:** Caution patients about possible combined effects with alcohol and other CNS depressants. An additive effect may occur if alcohol is consumed the day following use for nighttime sedation. This potential may exist for several days following discontinuation. Caution against hazardous occupations requiring complete mental alertness (e.g., operating machinery, driving). Potential impairment of performance of such activities may occur the day following ingestion. Not recommended for use in persons under 15 years of age. Withdrawal symptoms rarely reported; abrupt discontinuation should be avoided with gradual tapering of dosage for those patients on medication for a prolonged period of time. Use caution in administering to addiction-prone individuals or those who might increase dosage.

**Precautions:** In elderly and debilitated patients, it is recommended that the dosage be limited to 15 mg to reduce risk of oversedation, dizziness, confusion and/or ataxia. Consider potential additive effects with other hypnotics or CNS depressants. Employ usual precautions in severely depressed patients, or in those with latent depression or suicidal tendencies, or in those with impaired renal or hepatic function.

**Adverse Reactions:** Dizziness, drowsiness, lightheadedness, staggering, ataxia and falling have occurred, particularly in elderly or debilitated patients. Severe sedation, lethargy, disorientation and coma, probably indicative of drug intolerance or overdosage, have been reported. Also reported: headache, heartburn, upset stomach, nausea, vomiting, diarrhea, constipation, GI pain, nervousness, talkativeness, apprehension, irritability, weakness, palpitations, chest pains, body and joint pains and GU complaints. There have also been rare occurrences of leukopenia, granulocytopenia, sweating, blurred vision, difficulty in focusing, blurred vision, burning eyes, faintness, hypotension, shortness of breath, pruritus, skin rash, dry mouth, bitter taste, excessive salivation, anorexia, euphoria, depression, slurred speech, confusion, restlessness, hallucinations, and elevated SGOT, SGPT, total and direct bilirubin, and alkaline phosphatase; and paradoxical reactions, e.g., excitement, stimulation and hyperactivity.

**Dosage:** Individualize for maximum beneficial effect. **Adults:** 30 mg usual dosage, 15 mg may suffice in some patients. **Elderly or debilitated patients:** 15 mg recommended initially until response is determined.

**Supplied:** Capsules containing 15 mg or 30 mg flurazepam HCl.



Roche Products Inc.  
Manati, Puerto Rico 00701

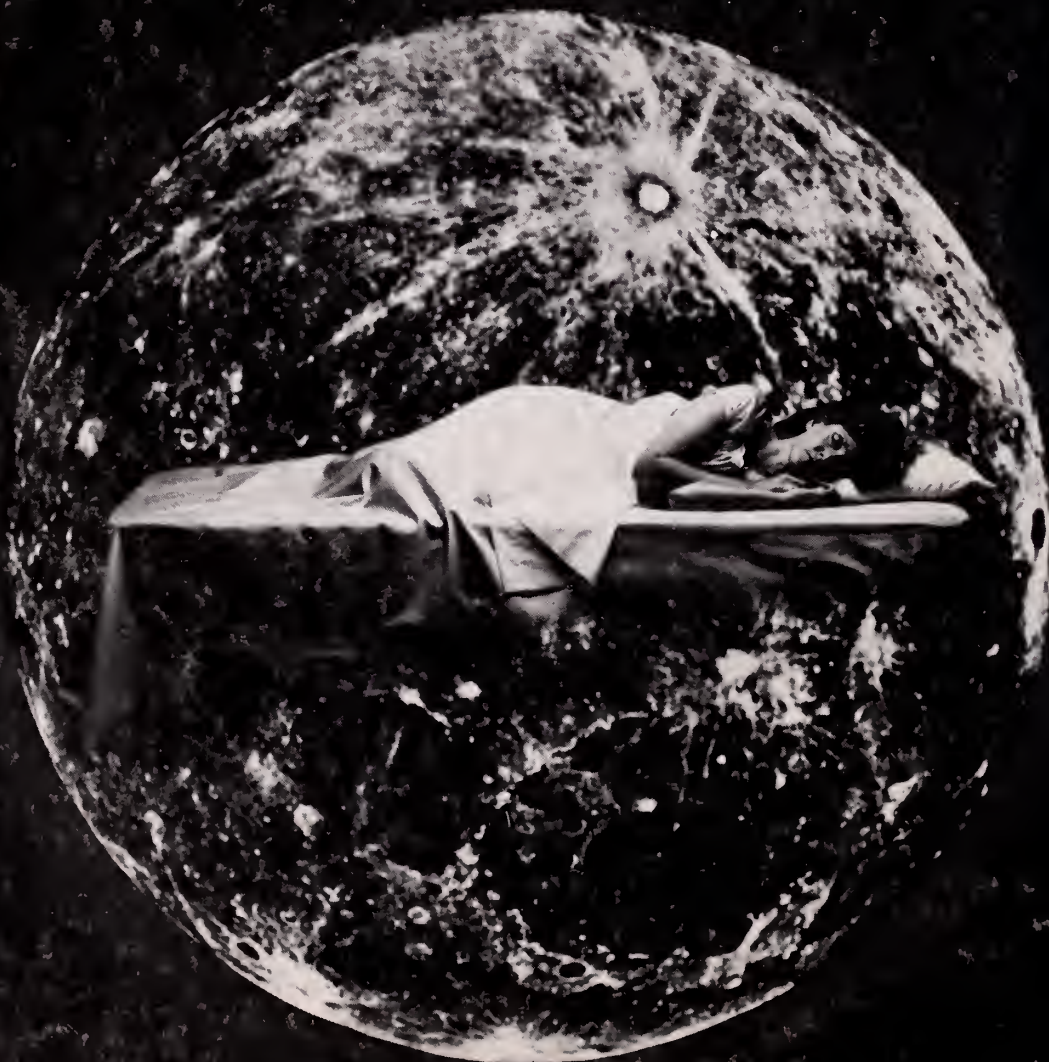


# #1 FOR SLEEP

After more than 15 years of use, it's #1 for sleep that satisfies. Patients are satisfied because they fall asleep fast and stay asleep till morning.<sup>1-8</sup> And *you're* satisfied by the exceptionally wide margin of safety.<sup>7-9</sup> As always, caution patients about driving or drinking alcohol.

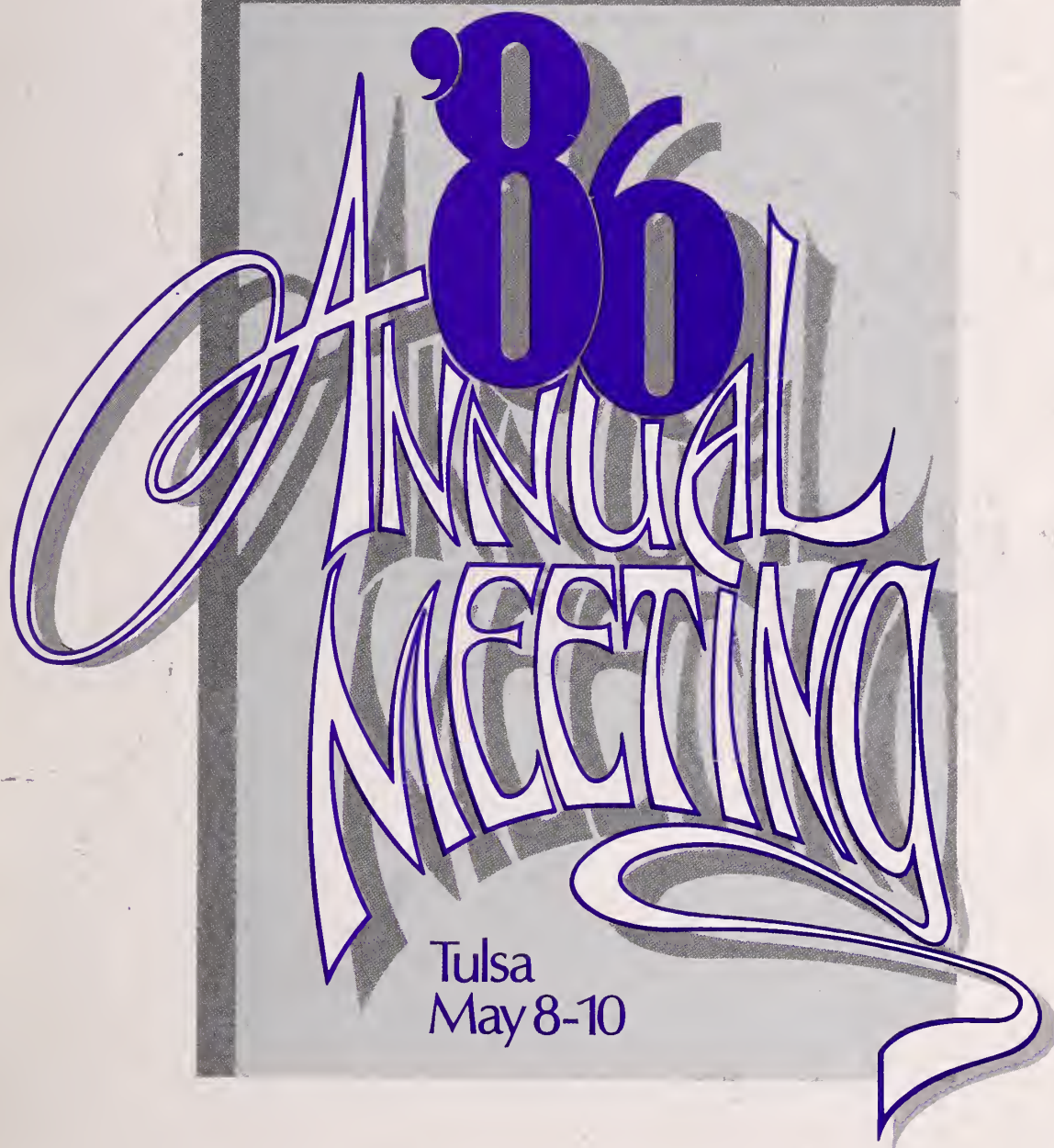
Please see references and summary of product information on reverse side

**DALMANE<sup>®</sup>**  
flurazepam HCl/Roche <sup>®</sup>  
**sleep that satisfies**



# JOURNAL

OKLAHOMA STATE MEDICAL ASSOCIATION  
APRIL 1986





---

**CARDIOLOGY**

Charles W. Cathey, M.D.  
Charles W. Robinson, Jr., M.D.  
Thomas R. Russell, M.D.  
Paul C. Houk, M.D.  
Stanley G. Rockson, M.D.

---

**CARDIOVASCULAR  
THORACIC  
SURGERY**

Edward R. Munnell, M.D.  
R. Nathan Grantham M.D.  
Paul J. Kanaly, M.D.

---

**CLINICAL PSYCHOLOGY**

Lucien D. Rose, Ph.D.

---

**DERMATOLOGY****MOHS SURGERY**

William J. Sahl, Jr., M.D.  
Michael D. John, M.D.

---

**OTOLARYNGOLOGY****HEAD AND NECK SURGERY**

C. Joseph Wine, M.D.  
Joseph E. Leonard, M.D.  
Willard B. Moran, Jr., M.D.

---

**ENDOCRINOLOGY - DIABETES**

James L. Males, M.D.  
Ronald P. Painton, M.D.  
Jonathan L. Davis, M.D.

---

**GASTROENTEROLOGY**

Malcolm G. Robinson, M.D.  
David A. Neumann, M.D.  
Gretchen A. McCoy, M.D.  
Mark H. Mellow, M.D.

---

**GENERAL SURGERY**

Frank G. Gatchell, M.D.  
Jay P. Cannon, M.D.

---

**HEMATOLOGY - ONCOLOGY**

Ralph G. Ganick, M.D.  
Mark E. King, M.D.

---

**AMBULATORY CARE**

Kent C. Hensley, M.D.  
Leslie A. Arneson, M.D.

---

**INFECTIOUS DISEASES**

Daniel J. Sexton, M.D.  
Clifford G. Wlodaver, M.D.

---

**INTERNAL MEDICINE**

W.W. Rucks, Jr., M.D.  
William S. Pugsley, M.D.  
Donald G. Preuss, M.D.  
Earl S. Elliott, Jr., M.D.  
Brian P. Levy, M.D.  
Charles D. Arnold, M.D.  
Richard H. Dykstra, M.D.

---

**OPHTHALMOLOGY**

James T. Quinlan, M.D.

---

**OBSTETRICS AND GYNECOLOGY**

John W. Records, M.D.  
Schales L. Atkinson, M.D.  
Roger D. Quinn, M.D.  
Thomas R. Bryant, M.D.  
Ronald E. Hempling, M.D.  
Laura L. Mackie, M.D.  
John D. Dachauer, M.D.

---

**ORTHOPEDIC SURGERY**

J. Patrick Livingston, M.D.  
Gene L. Muse, M.D.

---

**PEDIATRICS**

James E. Mayes, Jr., M.D.  
Hal B. Vorse, M.D.  
William J. Kruse, M.D.  
Gary D. McGann, M.D.  
Mickey E. Crittenden, M.D.  
Don L. Wilber, M.D.  
Charles A. (Tony) Leveridge, M.D.  
David H. Cheatham, M.D.

---

**PEDIATRIC NEUROLOGY**

Marc Hille, M.D.

---

**PULMONARY DISEASE**

William W. Cook, M.D.  
Mark S. Fixley, M.D.  
Steven R. Smith, M.D.

---

**RADIATION THERAPY**

Stephen E. Acker, M.D.

---

**RADIOLOGY**

Melvin C. Hicks, M.D.  
J. Kent Chesnut, M.D.  
Alan M. Effron, M.D.  
Howard G. Daniel, M.D.  
Robyn L. Birdwell, M.D.  
Carol V. Sheldon, M.D.  
Bert R. Carollo, M.D.

---

**RHEUMATOLOGY**

William T. Tatum, Jr., M.D.

---

**UROLOGY**

Donald D. Albers, M.D.  
William F. Barnes, M.D.  
Richard E. Herlihy, M.D.

---

**EXECUTIVE DIRECTOR**

A. Wayne Coventon, M.D.

---

**DIABETES  
MANAGEMENT  
CENTER**

Patient Education  
by Referral

---

**NUTRITION  
COUNSELING**

Patient Education  
by Referral

---

**ACCREDITED**

Accreditation Association  
for Ambulatory  
HealthCare, Inc.

# Oklahoma City Clinic



701 Northeast 10th Street  
Oklahoma City, Oklahoma 73104

*Multiple Specialty Clinic*



Telephone 271-2700

1-800-522-0224





# Let Us "Balance" Your Books

Some physicians think keeping business accounts in balance is a magic trick. But — like the gymnast on a balance beam — your office manager can keep your books in balance with a little computer equilibrium.

At Prodata, we know the right computer system can improve your cash flow and reduce office paperwork. Our system is the only one to offer **all** of the following:

- complete automation of office collections
- electronic processing of insurance claims
- patient recall and follow-up
- scheduling of appointments
- customized software packages for all specialties and every size of practice
- total on-site training, support and service
- lease/purchase available
- **a written buy-back guarantee.**

Prodata Medical Systems — the next best thing to an office manager with ten arms!

Let us "balance" your books.

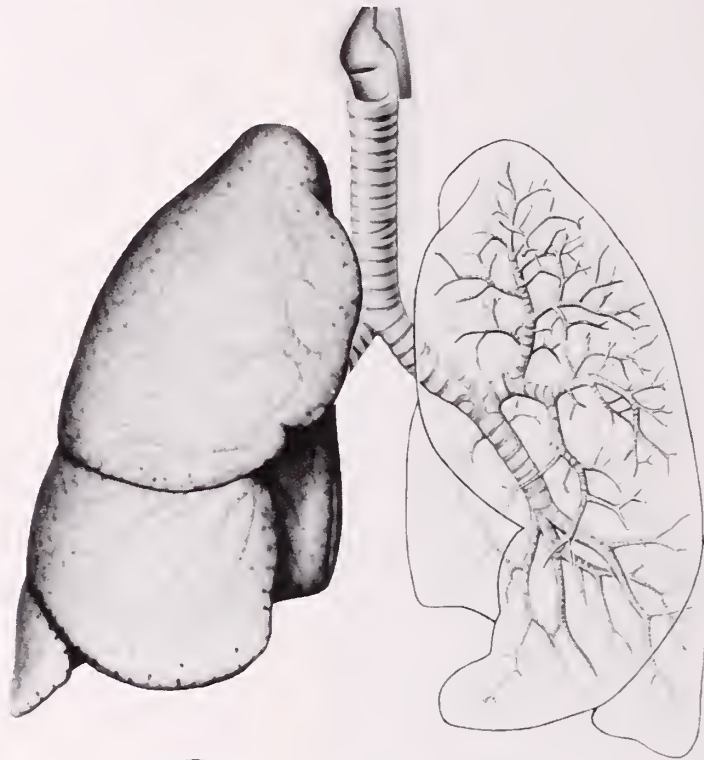
TEXAS  
INSTRUMENTS 

**Prodata**  
medical systems

One Broadway Center 100 NW 63rd Suite 100  
Oklahoma City, OK 73116 (405) 840-0461

Endorsed by M.D. Physicians, Inc., as its sole recommended vendor for computer hardware and software.

# Consider the causative organisms...



**Cecilor<sup>®</sup>**  
cefactor

**250-mg Pulvules<sup>®</sup> t.i.d.**

**offers effectiveness against  
the major causes of bacterial bronchitis**

***H. influenzae*, *H. influenzae*, *S. pneumoniae*, *S. pyogenes***  
(ampicillin-susceptible) (ampicillin-resistant)

**Brief Summary** Consult the package literature for prescribing information.

**Indications and Usage** Cecilor\* (cefactor, Lilly) is indicated in the treatment of the following infections when caused by susceptible strains of the designated microorganisms:

Lower respiratory infections, including pneumonia caused by *Streptococcus pneumoniae* (*Diplococcus pneumoniae*), *Haemophilus influenzae*, and *S. pyogenes* (group A beta hemolytic streptococci).

Appropriate culture and susceptibility studies should be performed to determine susceptibility of the causative organism to Cecilor.

**Contraindication** Cecilor is contraindicated in patients with known allergy to the cephalosporin group of antibiotics.

**Warnings** IN PENICILLIN SENSITIVE PATIENTS, CEPHALOSPORIN ANTIBIOTICS SHOULD BE ADMINISTERED CAUTIOUSLY. THERE IS CLINICAL AND LABORATORY EVIDENCE OF PARTIAL CROSS ALLERGENICITY OF THE PENICILLINS AND THE CEPHALOSPORINS. AND THERE ARE INSTANCES IN WHICH PATIENTS HAVE HAD REACTIONS, INCLUDING ANAPHYLAXIS, TO BOTH DRUG CLASSES.

Antibiotics, including Cecilor, should be administered cautiously to any patient who has demonstrated some form of allergy, particularly to drugs.

Pseudomembranous colitis has been reported with virtually all broad spectrum antibiotics, including macrolides, semisynthetic penicillins, and cephalosporins; therefore, it is important to consider its diagnosis in patients who develop diarrhea in association with the use of antibiotics. Such colitis may range in severity from mild to life-threatening.

Treatment with broad spectrum antibiotics alters the normal flora of the colon and may permit overgrowth of clostridia. Studies indicate that a toxin produced by *Clostridium difficile* is one primary cause of antibiotic-associated colitis.

Mild cases of pseudomembranous colitis usually respond to drug discontinuance alone. In moderate to severe cases, manage-

ment should include sigmoidoscopy, appropriate bacteriologic studies, and fluid, electrolyte, and protein supplementation. When the colitis does not improve after the drug has been discontinued, or when it is severe, oral vancomycin is the drug of choice for antibiotic-associated pseudomembranous colitis produced by *C. difficile*. Other causes of colitis should be ruled out.

**Precautions** **General Precautions** — If an allergic reaction to Cecilor\* (cefactor, Lilly) occurs, the drug should be discontinued and, if necessary, the patient should be treated with appropriate agents, e.g., pressor amines, antihistamines, or corticosteroids. Prolonged use of Cecilor may result in the overgrowth of nonsusceptible organisms. Careful observation of the patient is essential. If superinfection occurs during therapy, appropriate measures should be taken.

Positive direct Coombs' tests have been reported during treatment with the cephalosporin antibiotics. In hematologic studies or in transfusion cross-matching procedures when anti-globulin tests are performed on the minor side or in Coombs' testing of newborns whose mothers have received cephalosporin antibiotics before parturition, it should be recognized that a positive Coombs' test may be due to the drug.

Cecilor should be administered with caution in the presence of markedly impaired renal function. Under such conditions, careful clinical observation and laboratory studies should be made because safe dosage may be lower than that usually recommended. As a result of administration of Cecilor, a false positive reaction for glucose in the urine may occur. This has been observed with Benedict's and Fehling's solutions and also with Clinistix<sup>®</sup> tablets but not with Tes-Tape<sup>®</sup> (Glucose Enzymatic Test Strip USP, Lilly).

Broad spectrum antibiotics should be prescribed with caution in individuals with a history of gastrointestinal disease, particularly colitis.

**Usage in Pregnancy** — **Pregnancy Category B** — Reproduction studies have been performed in mice and rats at doses up to 12 times the human dose and in terrets given three times the maximum

human dose and have revealed no evidence of impaired fertility or harm to the fetus due to Cecilor\* (cefactor, Lilly). There are, however, no adequate and well-controlled studies in pregnant women. Because animal reproduction studies are not always predictive of human response, this drug should be used during pregnancy only if clearly needed.

**Nursing Mothers** — Small amounts of Cecilor have been detected in mother's milk following administration of single 500-mg doses. Average levels were 0.16, 0.20, 0.21, and 0.16 mcg/ml at two, three, four, and five hours, respectively. Trace amounts were detected at one hour. The effect on nursing infants is not known. Caution should be exercised when Cecilor is administered to a nursing woman.

**Usage in Children** — Safety and effectiveness of this product for use in infants less than one month of age have not been established.

**Adverse Reactions** Adverse effects considered related to therapy with Cecilor are uncommon and are listed below.

**Gastrointestinal symptoms** occur in about 2.5 percent of patients and include diarrhea (1 in 10),

Symptoms of pseudomembranous colitis may appear either during or after antibiotic treatment. Nausea and vomiting have been reported rarely.

Hypersensitivity reactions have been reported in about 1.5 percent of patients and include morbilliform eruptions (1 in 100), Pruritus, urticaria, and positive Coombs' tests each occur in less than 1 in 200 patients. Cases of serum sickness-like reactions (erythema multiforme or the above skin manifestations accompanied by arthritis/arthralgia and, frequently, fever) have been reported. These reactions are apparently due to hypersensitivity and have usually occurred during or following a second course of therapy with Cecilor. Such reactions have been reported more frequently in children than in adults. Signs and symptoms usually occur a few days after initiation of therapy and subside within a few days after cessation of therapy. No serious sequelae have been reported. Antihistamines and corticosteroids appear to enhance resolution of the syndrome.

Cases of anaphylaxis have been reported; half of which have

occurred in patients with a history of penicillin allergy.

Other effects considered related to therapy included eosinophilia (1 in 50 patients) and genital pruritus or vaginitis (less than 1 in 100 patients).

**Causal Relationship Uncertain** — Transitory abnormalities in clinical laboratory test results have been reported. Although they were of uncertain etiology, they are listed below to serve as alerting information for the physician.

**Hepatic** — Slight elevations in SGOT, SGPT, or alkaline phosphatase values (1 in 40).

**Hematopoietic** — Transient fluctuations in leukocyte count, predominantly lymphocytosis occurring in infants and young children (1 in 40).

**Renal** — Slight elevations in BUN or serum creatinine (less than 1 in 500) or abnormal urinalysis (less than 1 in 200).

[061782R]

**Note:** Cecilor\* (cefactor, Lilly) is contraindicated in patients with known allergy to the cephalosporins and should be given cautiously to penicillin-allergic patients.

Penicillin is the usual drug of choice in the treatment and prevention of streptococcal infections, including the prophylaxis of rheumatic fever. See prescribing information.

© 1984 ELI LILLY AND COMPANY



Additional information available to the profession on request from Eli Lilly and Company, Indianapolis, Indiana 46285. Eli Lilly Industries, Inc., Carolina, Puerto Rico 00630.

833-844

## EDITORIAL BOARD

MARK R. JOHNSON, MD  
*Editor-in-Chief*

HARRIS D. RILEY, JR, MD  
*Editor*

ROBERT G. TOMPKINS, MD  
*Editor*

## STAFF

DAVID BICKHAM  
*OSMA Executive Director*

M. MICHAEL SULZYCKI  
*Director of Communications*

SUSAN RECORDS HARRISON  
*Managing Editor*

# JOURNAL

OKLAHOMA STATE MEDICAL ASSOCIATION

APRIL 1986

VOL. 79, No. 4

## EDITORIAL

- Impossible Possibilities ..... 227  
MARK R. JOHNSON, MD

- President's Page ..... 228  
ELVIN M. AMEN, MD

## SCIENTIFIC

- The Noninvasive Vascular Laboratory — An Update  
Part II: Current Uses — Evaluation of Arterial  
Circulation (Second of Three Parts) ..... 229  
M. ALEX JACOBS, MD, and THOMAS L. WHITSETT, MD

- Biochemical Urine Screening: Rationale and  
Advantages ..... 234  
JOHNNY B. ROY, MD, and PAULA D. ROBINSON, MT

## SPECIAL

- The Physician and Worker's Compensation in the  
State of Oklahoma ..... 237  
JOHN W. ELLIS, MD

## COMMENTARY

- The Establishment of Health Care Policy in the  
United States ..... 241  
EDWARD N. BRANDT, JR., MD, PHD

- Abolishment of the Insanity Defense —  
The Only Logical Course ..... 244  
JOE D. HAINES, JR., MD

## 1986 ANNUAL MEETING PROGRAM ..... 263

## NEWS ..... 249

DHS requires HCFA-1500 form . . . OKC doctor heads SNM  
chapter . . . OSMA helping Special Olympics . . . Trustees  
approve Life Memberships . . . Fibrocystic condition not  
necessarily precancerous . . . Surgeon transmits hepatitis B  
to five patients . . . Cocaine abuse withdrawal detailed . . .  
Salt levels critical to ultramarathoners

## DEPARTMENTS

- |                            |                         |  |
|----------------------------|-------------------------|--|
| State Department           | Index to                |  |
| of Health ..... 247        | Advertisers ..... 294   |  |
| Deaths ..... 260           | Instructions            |  |
| In Memoriam ..... 260      | for Authors ..... 294   |  |
| Reaction Time ..... 261    | Auxiliary ..... 295     |  |
| Miscellaneous Adv. ... 261 | The Last Word ..... 296 |  |

Cover art by  
Art Trends, Oklahoma City

Cover art direction by  
Graphic Art Center, Oklahoma City

The JOURNAL (ISSN 0030-1876) is the official publication  
of the Oklahoma State Medical Association and is  
published monthly under the direction of the  
OSMA Board of Trustees. Editorial office is at  
601 Northwest Expressway, Oklahoma City, OK 73118.  
Printed by the Transcript Press, 222 East  
Eufaula Street, Norman, OK 73069. Second class  
postage paid at Oklahoma City, OK 73125.

Subscription to the JOURNAL is included in membership  
fees. Others subscriptions are \$10.00 per year (\$28.00  
foreign). Back issues are \$3.00 per copy, subject to  
availability, or can be obtained on microfilm from  
University Microfilms International, 300 North Zeeb  
Road, Department PR, Ann Arbor, MI 48106.

The JOURNAL does not assume responsibility for opinions  
expressed by the authors. Products and services  
advertised in the JOURNAL are neither endorsed nor  
warranted by the Oklahoma State Medical Association.

Copyright © 1986 by the Oklahoma State Medical  
Association.

POSTMASTERS: Send all change of address notices to  
601 Northwest Expressway, Oklahoma City, OK 73118.

The JOURNAL of the Oklahoma State Medical  
Association (USPS 285-000)



# I'm Tied Up at the Office Tonight...

As a modern medical practitioner, you have to worry about much more than diagnosing and treating your patients. When C.P.T. and I.C.D.A.-9 codes, RVG's, Medicare and Medicaid claims and personnel management keep you "tied to your office," Professional Office Management can release you to make the most of your free time.

Since 1980, POM has given busy physicians a better way of controlling their medical practices. Designed to provide efficient, cost-effective alternatives to traditional office management, POM cuts you loose to

- spend quality time with your patients
- increase office cash flow, collections and
- save costs by reducing overhead.

**POM — you owe it to yourself.**



**pom**

Professional Office Management

1110 N. Classen Blvd. Suite 100 • Oklahoma City, OK 73106 • (405) 232-7059



YEARS

Thank you for your loyal support



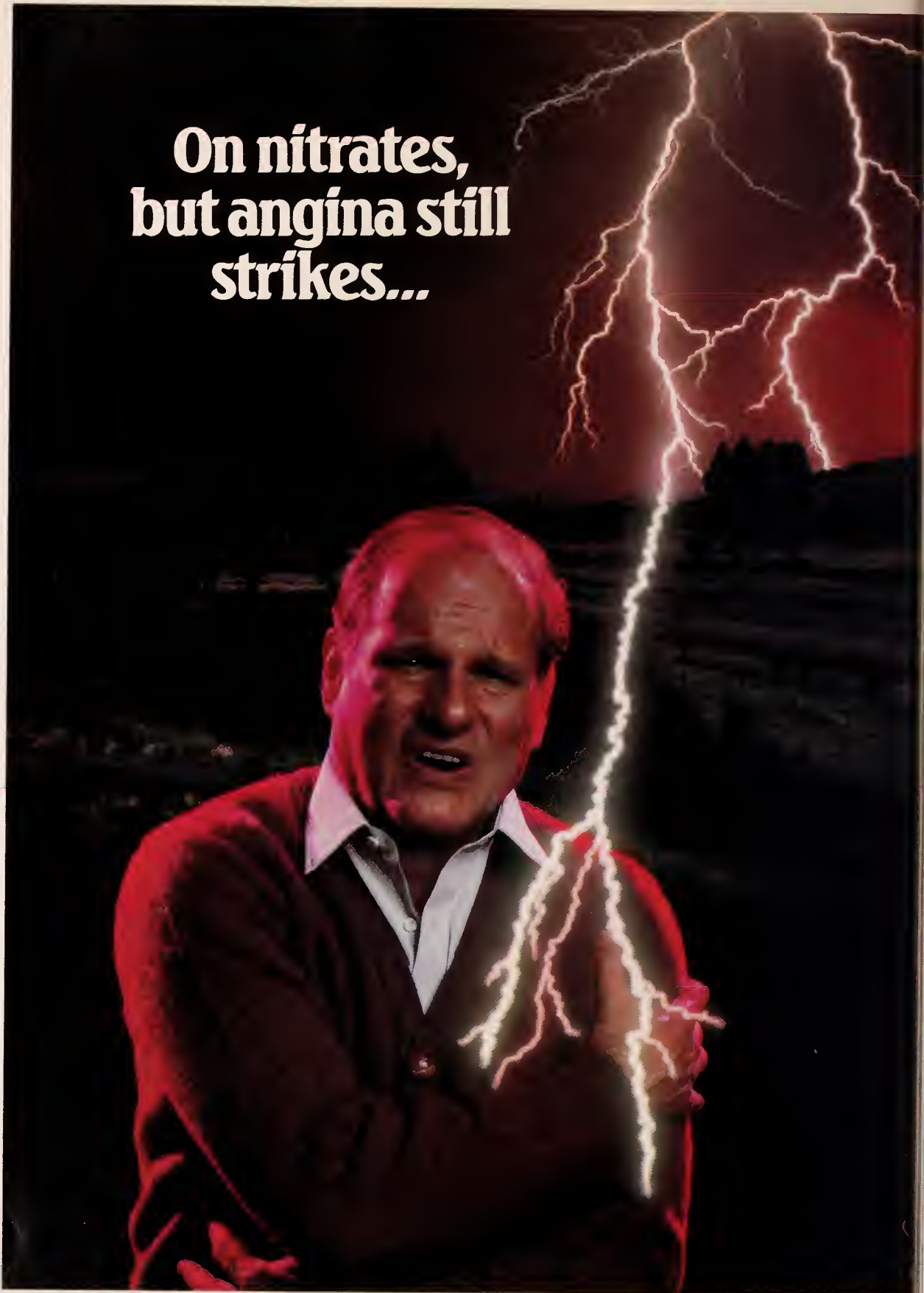
**DYAZIDE<sup>®</sup>**

25 mg Hydrochlorothiazide/50 mg Triamterene/SKF

**SK&F CO.**



**On nitrates,  
but angina still  
strikes...**





# After a nitrate, add ISOPTIN<sup>®</sup> (verapamil HCl/Knoll)

**To protect your patients, as well as their quality of life,  
add Isoptin instead of a beta blocker.**

**F**irst, Isoptin not only reduces myocardial oxygen demand by reducing peripheral resistance, but also increases coronary perfusion by preventing coronary vasospasm and dilating coronary arteries — both normal and stenotic. These are antianginal actions that no beta blocker can provide.

Second, Isoptin spares patients the beta-blocker side effects that may compromise the quality of life.

With Isoptin, fatigue, bradycardia and mental depression are rare. Unlike beta blockers, Isoptin can safely be given to patients with asthma, COPD, diabetes or peripheral vascular disease. Serious adverse reactions with Isoptin are rare at recommended doses; the single most common side effect is constipation (6.3%).

Cardiovascular contraindications to the use of Isoptin are similar to those of beta blockers: severe left ventricular dysfunction, hypotension (systolic pressure <90 mm Hg) or cardiogenic shock, sick sinus syndrome (if no artificial pacemaker is present) and second- or third-degree AV block.

So, the next time a nitrate is not enough, add Isoptin... for more comprehensive antianginal protection without side effects which may cramp an active life style.



**ISOPTIN. Added  
antianginal protection  
without beta-blocker  
side effects.**

# ISOPTIN® (verapamil HCl/Knoll)

80 mg and 120 mg scored, film-coated tablets

**Contraindications:** Severe left ventricular dysfunction (see *Warnings*), hypotension (systolic pressure < 90 mm Hg) or cardiogenic shock, sick sinus syndrome (except in patients with a functioning artificial ventricular pacemaker), 2nd- or 3rd-degree AV block. **Warnings:** ISOPTIN should be avoided in patients with severe left ventricular dysfunction (e.g., ejection fraction < 30% or moderate to severe symptoms of cardiac failure) and in patients with any degree of ventricular dysfunction if they are receiving a beta blocker. (See *Precautions*.) Patients with milder ventricular dysfunction should, if possible, be controlled with optimum doses of digitalis and/or diuretics before ISOPTIN is used. (Note interactions with digoxin under *Precautions*.) ISOPTIN may occasionally produce hypotension (usually asymptomatic, orthostatic, mild and controlled by decrease in ISOPTIN dose). Elevations of transaminases with and without concomitant elevations in alkaline phosphatase and bilirubin have been reported. Such elevations may disappear even with continued treatment; however, four cases of hepatocellular injury by verapamil have been proven by rechallenge. Periodic monitoring of liver function is prudent during verapamil therapy. Patients with atrial flutter or fibrillation and an accessory AV pathway (e.g. W-P-W or L-G-L syndromes) may develop increased antegrade conduction across the aberrant pathway bypassing the AV node, producing a very rapid ventricular response after receiving ISOPTIN (or digitalis). Treatment is usually D.C.-cardioversion, which has been used safely and effectively after ISOPTIN. Because of verapamil's effect on AV conduction and the SA node, 1° AV block and transient bradycardia may occur. High grade block, however, has been infrequently observed. Marked 1° or progressive 2° or 3° AV block requires a dosage reduction or, rarely, discontinuation and institution of appropriate therapy depending upon the clinical situation. Patients with hypertrophic cardiomyopathy (IHSS) received verapamil in doses up to 720 mg/day. It must be appreciated that this group of patients had a serious disease with a high mortality rate and that most were refractory or intolerant to propranolol. A variety of serious adverse effects were seen in this group of patients including sinus bradycardia, 2° AV block, sinus arrest, pulmonary edema and/or severe hypotension. Most adverse effects responded well to dose reduction and only rarely was verapamil discontinued. **Precautions:** ISOPTIN should be given cautiously to patients with impaired hepatic function (in severe dysfunction use about 30% of the normal dose) or impaired renal function, and patients should be monitored for abnormal prolongation of the PR interval or other signs of excessive pharmacologic effects. Studies in a small number of patients suggest that concomitant use of ISOPTIN and beta blockers may be beneficial in patients with chronic stable angina. Combined therapy can also have adverse effects on cardiac function. Therefore, until further studies are completed, ISOPTIN should be used alone, if possible. If combined therapy is used, close surveillance of vital signs and clinical status should be carried out. Combined therapy with ISOPTIN and propranolol should usually be avoided in patients with AV conduction abnormalities and/or depressed left ventricular function. Chronic ISOPTIN treatment increases serum digoxin levels by 50% to 70% during the first week of therapy, which can result in digitalis toxicity. The digoxin dose should be reduced when ISOPTIN is given, and the patients should be carefully monitored to avoid over- or under-digitalization. ISOPTIN may have an additive effect on lowering blood pressure in patients receiving oral antihypertensive agents. Disopyramide should not be given within 48 hours before or 24 hours after ISOPTIN administration. Until further data are obtained, combined ISOPTIN and quinidine therapy in patients with hypertrophic cardiomyopathy should probably be avoided, since significant hypotension may result. Clinical experience with the concomitant use of ISOPTIN and short- and long-acting nitrates suggest beneficial interaction without undesirable drug interactions. Adequate animal carcinogenicity studies have not been performed. One study in rats did not suggest a tumorigenic potential, and verapamil was not mutagenic in the Ames test. **Pregnancy Category C:** There are no adequate and well-controlled studies in pregnant women. This drug should be used during pregnancy, labor and delivery only if clearly needed. It is not known whether verapamil is excreted in breast milk; therefore, nursing should be discontinued during ISOPTIN use. **Adverse Reactions:** Hypotension (2.9%), peripheral edema (1.7%), AV block: 3rd degree (0.8%), bradycardia: HR < 50/min (1.1%), CHF or pulmonary edema (0.9%), dizziness (3.6%), headache (1.8%), fatigue (1.1%), constipation (6.3%), nausea (1.6%), elevations of liver enzymes have been reported. (See *Warnings*.) The following reactions, reported in less than 0.5%, occurred under circumstances where a causal relationship is not certain: ecchymosis, bruising, gynecomastia, psychotic symptoms, confusion, paresthesia, insomnia, somnolence, equilibrium disorder, blurred vision, syncope, muscle cramp, shakiness, claudication, hair loss, macules, spotty menstruation. **How Supplied:** ISOPTIN (verapamil HCl) is supplied in round, scored, film-coated tablets containing either 80 mg or 120 mg of verapamil hydrochloride and embossed with "ISOPTIN 80" or "ISOPTIN 120" on one side and with "KNOLL" on the reverse side. Revised August, 1984. 2385



**KNOLL PHARMACEUTICAL COMPANY**  
30 NORTH JEFFERSON ROAD, WHIPPANY, NEW JERSEY 07981

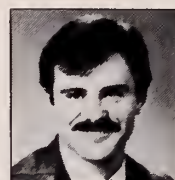
2406

**EMPLOYEES  
APPRECIATE  
THE PAYROLL  
SAVINGS PLAN.**

**JUST ASK THE  
PEOPLE AT THE  
BOEING COMPANY.**

"My folks gave me a Bond for my birthday every year. Now I can do the same for my kids."

—Vaughn Hale



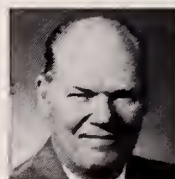
"It's certainly a painless way to save. The money comes directly out of my paycheck every two weeks."

—Florence Perry



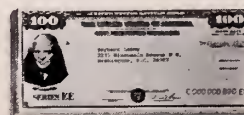
"This is one way I can support my government and save at the same time."

—Douglas Scribner



U.S. Savings Bonds now offer higher variable interest rates and a guaranteed return. Your employees will appreciate that. They'll also appreciate your giving them the easiest, surest way to save.

For more information, write to: Steven R. Mead, Executive Director, U.S. Savings Bonds Division, Department of the Treasury, Washington, DC 20226.



**U.S. SAVINGS BONDS**  
Paying Better Than Ever

A public service of this publication.



# AMERICAN MEDICAL INTERNATIONAL'S PHYSICIAN PLACEMENT SERVICE

*American Medical International* has instituted a new corporate service to assist Physicians interested in solo or group practice opportunities servicing AMI hospitals. Current opportunities are available for physicians who are Board Certified or Eligible. Specific areas of interest are:

- Allergist
- Anesthesiologist
- Cardiologist
- ENT
- Emergency Medicine
- Family Practice
- Gastroenterologist
- General Practice
- General Surgeon
- Geriatric Medicine
- Industrial Medicine
- Oncologist - Medical and GYN
- Neurologist
- Neurosurgeon
- OB/GYN
- Ophthalmologist
- Orthopedic Surgeon
- Pediatrician
- Plastic Surgeon
- Radiologist
- Rheumatologist
- Thoracic Surgeon

Physicians interested in pursuing opportunities with AMI should contact this service by calling or submitting a curriculum vitae to:

Norman Penick  
Vice President  
Human Resources  
AMI  
9465 Wilshire Blvd., Ste. 915  
Beverly Hills, CA 90212  
(213) 858-6927  
National (800) 533-7013  
California (800) 325-4881





- **EIGHT TORNADO DAUGHTERS**
- **TEN PURE POLISH MARES**
- **FIVE STRAIGHT RUSSIAN MARES**
- **MANY SELLING WITH A BREEDING OR IN FOAL TO VALENTENO (\*Aladdin x Ambra)**

*Featuring:*

**\*CERRITA**

daughter of Negatiw, in foal to \*Aladdin

**DACA LA BASKA**

daughter of Tornado, National English potential

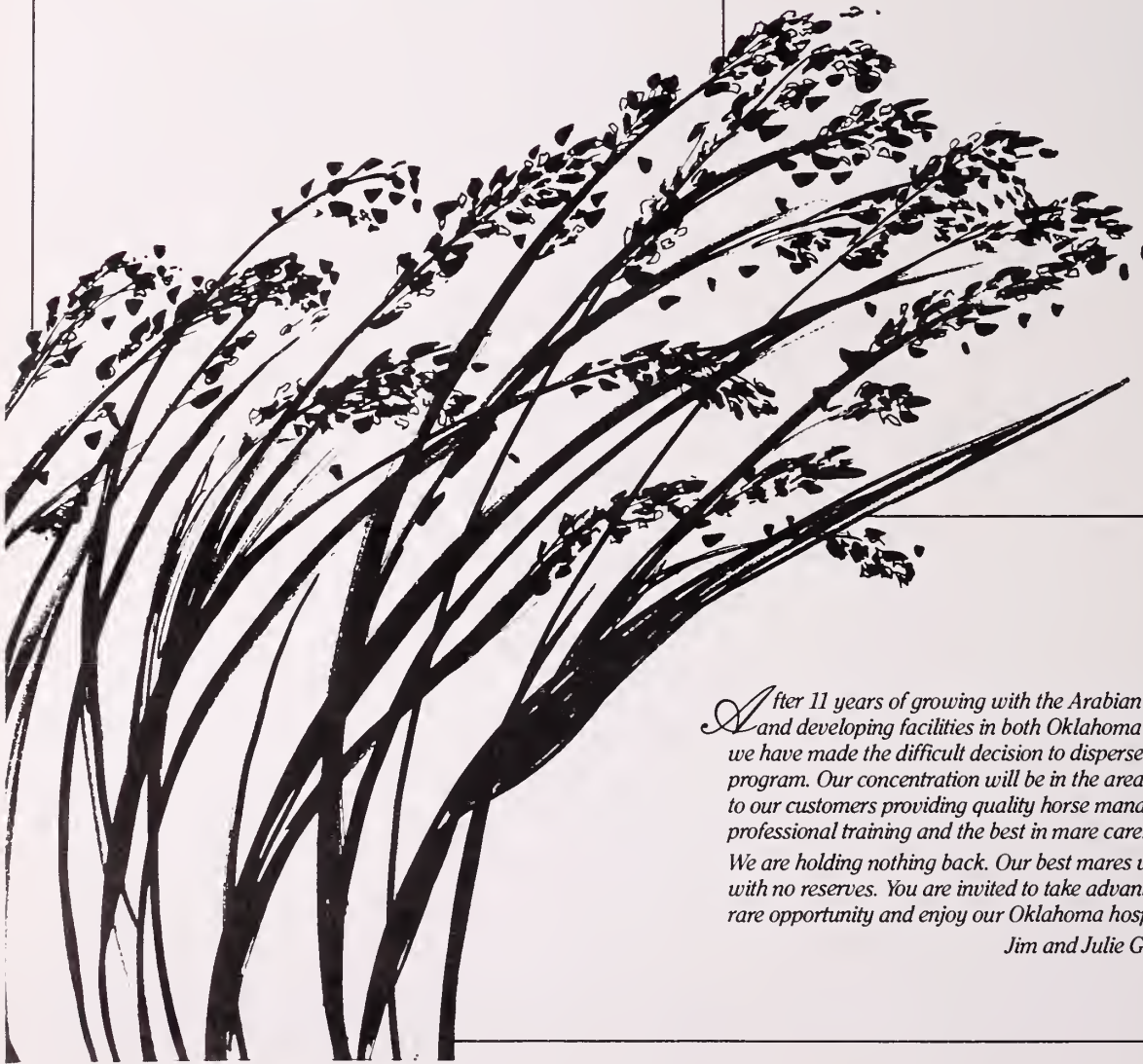
For complete catalog and credit information, contact:

**WINDY MEADOW FARM**

24401 North May Ave., Edmond, OK 73034  
Tel. 405/341-3891



June 14, 1986  
Saturday



*After 11 years of growing with the Arabian horse industry and developing facilities in both Oklahoma and Kentucky, we have made the difficult decision to disperse our breeding program. Our concentration will be in the area of service to our customers providing quality horse management, professional training and the best in mare care.*

*We are holding nothing back. Our best mares will be sold with no reserves. You are invited to take advantage of this rare opportunity and enjoy our Oklahoma hospitality.*

*Jim and Julie Grissom*

# COPPER LAKE MANOR...

## THE ALTERNATIVE



**N**ot all patients need nursing home care. Yet, some patients are not able to fully care for themselves in their own homes.

COPPER LAKE MANOR offers an alternative.

COPPER LAKE MANOR, located at the Village at Copper Lake in Edmond, offers luxurious living for the semi-independent. Your patient will be able to live life to the fullest and still have the security and peace of mind that comes with having full time nursing care available.

### NURSING SERVICES PROVIDED

- Skilled Nursing
- Occupational and Physical Therapy
- Maintenance of Health Files
- Monitoring of Medications
- Speech Therapy
- Health and Fitness Assessments
- Periodic Blood Pressure and Heart Rate Checks
- Health Education Programs

### Other COPPER LAKE MANOR amenities:

- Spacious Efficiency, 1 and 2 Bedroom Apartments
- Complete Meal Service in a Beautiful Dining Area
- Weekly Maid Service
- 24 hour Security and Health Monitoring
- 6 Acre Lake Complete with Fountains, Ducks and a Lighted Walkway
- Transportation
- Beauty Salon
- Much, Much More

*There is an alternative to nursing home care — Copper Lake Manor*  
Models open now — Reserve your apartment today



1300 W. 15th in Edmond  
340-5311

Call for more information or  
come by for a tour today!





## Cooper Brothers, Inc.: Experienced Specialists In Medical Facility Development

Cooper Brothers, Inc. offers physicians a single source of responsibility for the design, financing and construction of superior medical office buildings and clinics. Our design/build technique assures you complete control of costs and scheduling — without the need to divert attention from your medical practice. But, you don't have to take our word for it. We'll gladly put you in touch with our past clients who will confirm the integrity of our company and the quality of our work.

From your initial meeting with our medical division specialists, you'll have a firm price for your new facility — a price we can guarantee because of our experience in completing many successful medical facilities. Our experience also assures that your building will suit your working style, offer energy-efficient operation and low-cost maintenance, while reflecting the

unique structural, mechanical and design considerations of highly specialized medical facilities.



500 Cooper Center - 7100 N. Clossen Boulevard  
Oklahoma City, Oklahoma 73116 - 405 842-6653

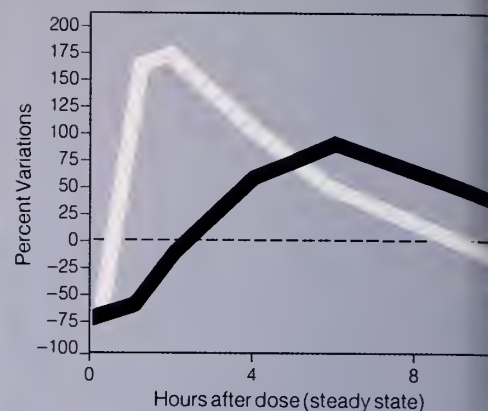




Easy to live with



## INDERAL LA and



- INDERAL LA avoids the sharp peaks seen with atenolol

# Blood pressure controlled,

## Smooth blood pressure control and well tolerated

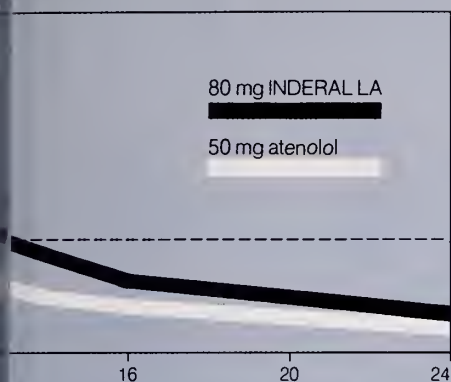
Once-daily INDERAL LA (propranolol HCl) keeps life simple for the patient. A single dose provides 24-hour blood pressure control. Convenient and well tolerated, INDERAL LA rarely interferes with everyday living. In fact, a recent study of 138 patients found a low incidence of side effects with INDERAL LA, which was not significantly different from that reported with metoprolol and atenolol.<sup>2</sup>

INDERAL LA should not be used in the presence of congestive heart failure, sinus bradycardia, cardiogenic shock, heart block greater than first degree, and bronchial asthma.

**Once-daily**  
**INDERAL<sup>®</sup> LA**  
**(PROPRANOLOL HCl) Long Acting Capsules**



tenolol over 24 hours\*<sup>1</sup>



\*Plasma concentrations in relation to the mean.

- Smooth, consistent plasma drug levels over 24 hours
- Full, 24-hour blood pressure control with INDERAL LA



# and feeling good.

## Added blood pressure control with the preferred diuretic

When more than one antihypertensive agent is needed, once-daily INDERIDE LA enhances patient compliance to improve long-term control. Patients receive all the benefits of controlled-release INDERAL LA and standard-release hydrochlorothiazide (HCTZ), for comfortable morning diuresis. Not only does this regimen permit patients to follow normal daily routines, but HCTZ also produces less potassium wastage on a mg-for-mg basis than chlorthalidone.<sup>3,4</sup>

**Once-daily  
INDERIDE® LA**  
(PROPRANOLOL HCl [INDERAL® LA]  
/HYDROCHLOROTHIAZIDE)

As with all fixed-combination antihypertensives, INDERIDE LA is not indicated for the initial treatment of hypertension.

Please turn page for brief summary of prescribing information.



# Once-daily **INDERAL® LA** (PROPRANOLOL HCl) LONG ACTING CAPSULES



The appearance of these capsules is a registered trademark of Ayerst Laboratories

BRIEF SUMMARY (FOR FULL PRESCRIBING INFORMATION, SEE PACKAGE CIRCULARS)

**INDERAL® LA** Brand of PROPRANOLOL HYDROCHLORIDE (Long Acting Capsules)  
**INDERIDE® LA** Brand of PROPRANOLOL HYDROCHLORIDE (INDERAL® LA) and HYDROCHLOROTHIAZIDE (Long Acting Capsules)

INDERAL LA AND INDERIDE LA Capsules should not be considered simple mg-for-mg substitutes for INDERAL and INDERIDE Tablets. Please see package circulars

## CONTRAINDICATIONS

**Propranolol hydrochloride (INDERAL® LA):** Propranolol is contraindicated in: 1) cardiogenic shock, 2) sinus bradycardia and greater than first degree block; 3) bronchial asthma, 4) congestive heart failure (see WARNINGS) unless the failure is secondary to a tachyarrhythmia treatable with propranolol

**Hydrochlorothiazide:** Hydrochlorothiazide is contraindicated in patients with anuria or hypersensitivity to this or other sulfonamide derived drugs.

## WARNINGS

**Propranolol hydrochloride (INDERAL® LA):** CARDIAC FAILURE: Sympathetic stimulation may be a vital component supporting circulatory function in patients with congestive heart failure, and its inhibition by beta blockade may precipitate more severe failure. Although beta blockers should be avoided in overt congestive heart failure, if necessary, they can be used with close follow-up in patients with a history of failure who are well compensated, and are receiving digitalis and diuretics. Beta-adrenergic blocking agents do not abolish the inotropic action of digitalis on heart muscle.

IN PATIENTS WITHOUT A HISTORY OF HEART FAILURE, continued use of beta blockers can, in some cases, lead to cardiac failure. Therefore, at the first sign or symptom of heart failure, the patient should be digitalized and/or treated with diuretics, and the response observed closely, or propranolol should be discontinued (gradually, if possible)

IN PATIENTS WITH ANGINA PECTORIS, there have been reports of exacerbation of angina and, in some cases, myocardial infarction following abrupt discontinuance of propranolol therapy. Therefore, when discontinuance of propranolol is planned the dosage should be gradually reduced and the patient carefully monitored. In addition, when propranolol is prescribed for angina pectoris, the patient should be cautioned against interruption or cessation of therapy without the physician's advice. If propranolol therapy is interrupted and exacerbation of angina occurs, it usually is advisable to reinstitute propranolol therapy and take other measures appropriate for the management of unstable angina pectoris. Since coronary artery disease may be unrecognized, it may be prudent to follow the above advice in patients considered at risk of having occult atherosclerotic heart disease who are given propranolol for other indications

**THYROTOXICOSIS:** Beta blockade may mask certain clinical signs of hyperthyroidism. Therefore, abrupt withdrawal of propranolol may be followed by an exacerbation of symptoms of hyperthyroidism, including thyroid storm. Propranolol does not distort thyroid function tests.

IN PATIENTS WITH WOLFF-PARKINSON WHITE SYNDROME, several cases have been reported in which, after propranolol, the tachycardia was replaced by a severe bradycardia requiring a demand pacemaker. In one case this resulted after an initial dose of 5 mg propranolol.

**MAJOR SURGERY:** The necessity or desirability of withdrawal of beta-blocking therapy prior to major surgery is controversial. It should be noted, however, that the impaired ability of the heart to respond to reflex adrenergic stimuli may augment the risks of general anesthesia and surgical procedures.

**Nonallergic Bronchospasm (eg, chronic bronchitis, emphysema)—PATIENTS WITH BRONCHOSPASTIC DISEASES SHOULD, IN GENERAL, NOT RECEIVE BETA BLOCKERS.** Inderal should be administered with caution, since it may block bronchodilation produced by endogenous and exogenous catecholamine stimulation of beta receptors

**DIABETES AND HYPOGLYCEMIA:** Beta adrenergic blockade may prevent the appearance of certain premonitory signs and symptoms (pulse rate and pressure changes) of acute hypoglycemia in labile insulin-dependent diabetes. In these patients, it may be more difficult to adjust the dosage of insulin. Hypoglycemic attacks may be accompanied by a precipitous elevation of blood pressure

**Hydrochlorothiazide:** Thiazides should be used with caution in severe renal disease. In patients with renal disease, thiazides may precipitate azotemia. In patients with impaired renal function, cumulative effects of the drug may develop.

Thiazides should also be used with caution in patients with impaired hepatic function or progressive liver disease, since minor alterations of fluid and electrolyte balance may precipitate hepatic coma

Thiazides may add to or potentiate the action of other antihypertensive drugs. Potentiation occurs with ganglionic or peripheral adrenergic blocking drugs.

Sensitivity reactions may occur in patients with a history of allergy or bronchial asthma.

The possibility of exacerbation or activation of systemic lupus erythematosus has been reported

## PRECAUTIONS

**Propranolol hydrochloride (INDERAL® LA):** GENERAL: Propranolol should be used with caution in patients with impaired hepatic or renal function. Propranolol is not indicated for the treatment of hypertensive emergencies

Beta adrenoceptor blockade can cause reduction of intraocular pressure. Patients should be told that propranolol may interfere with the glaucoma screening test. Withdrawal may lead to a return of increased intraocular pressure

**CLINICAL LABORATORY TESTS:** Elevated blood urea levels in patients with severe heart disease, elevated serum transaminase, alkaline phosphatase, lactate dehydrogenase

**DRUG INTERACTIONS:** Patients receiving catecholamine depleting drugs, such as reserpine should be closely observed if propranolol is administered. The added catecholamine-blocking action may produce an excessive reduction of resting sympathetic nervous activity, which may result in hypotension, marked bradycardia, vertigo, syncope attacks, or orthostatic hypotension

**CARCINOGENESIS, MUTAGENESIS, IMPAIRMENT OF FERTILITY:** Long-term studies in animals have been conducted to evaluate toxic effects and carcinogenic potential. In 18 month studies, in both rats and mice, employing doses up to 150 mg/kg/day, there was no evidence of significant drug-induced toxicity. There were no drug-related tumorigenic effects at any of the dosage levels. Reproductive studies in animals did not show any impairment of fertility that was attributable to the drug

**PREGNANCY:** Pregnancy Category C. Propranolol has been shown to be embryotoxic in animal studies at doses about 10 times greater than the maximal recommended human dose. There are no adequate and well-controlled studies in pregnant women. Propranolol should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus

# Once-daily **INDERIDE® LA**

Each capsule contains propranolol HCl (INDERAL® LA), 80 mg, 120 mg, or 160 mg, and hydrochlorothiazide, 50 mg



The appearance of these capsules is a registered trademark of Ayerst Laboratories

**NURSING MOTHERS:** Propranolol is excreted in human milk. Caution should be exercised when propranolol is administered to a nursing mother

**PEDIATRIC USE:** Safety and effectiveness in children have not been established

**Hydrochlorothiazide:** GENERAL: Periodic determination of serum electrolytes to detect possible electrolyte imbalance should be performed at appropriate intervals

All patients receiving thiazide therapy should be observed for clinical signs of fluid or electrolyte imbalance, namely: Hyponatremia, hypochloremic alkalosis, and hypokalemia. Serum and urine electrolyte determinations are particularly important when the patient is vomiting excessively or receiving parenteral fluids. Medication such as digitalis may also influence serum electrolytes. Warning signs irrespective of cause are: Dryness of mouth, thirst, weakness, lethargy, drowsiness, restlessness, muscle pains or cramps, muscular fatigue, hypotension, oliguria, tachycardia, and gastrointestinal disturbances such as nausea and vomiting

Hypokalemia may develop, especially with brisk diuresis, when severe cirrhosis is present, or during concomitant use of corticosteroids or ACTH

Interference with adequate oral electrolyte intake will also contribute to hypokalemia. Hypokalemia can sensitize or exaggerate the response of the heart to the toxic effect of digitalis (eg, increased ventricular irritability). Hypokalemia may be avoided or treated by use of potassium supplements, such as foods with a high potassium content

Any chloride deficit is generally mild and usually does not require specific treatment, except under extraordinary circumstances (as in liver or renal disease). Dilutional hyponatremia may occur in edematous patients in hot weather; appropriate therapy is water restriction, rather than administration of salt, except in rare instances when the hyponatremia is life-threatening. In actual salt depletion, appropriate replacement is the therapy of choice

Hyperuricemia may occur or frank gout may be precipitated in certain patients receiving thiazide therapy

Insulin requirements in diabetic patients may be increased, decreased, or unchanged. Diabetes mellitus which has been latent may become manifest during thiazide administration

If progressive renal impairment becomes evident, consider withholding or discontinuing diuretic therapy

Thiazides may decrease serum PBI levels without signs of thyroid disturbance

Calcium excretion is decreased by thiazides. Pathologic changes in the parathyroid gland with hypercalcemia and hypophosphatemia have been observed in a few patients on prolonged thiazide therapy. The common complications of hyperparathyroidism, such as renal lithiasis, bone resorption, and peptic ulceration, have not been seen. Thiazides should be discontinued before carrying out tests for parathyroid function

**DRUG INTERACTIONS:** Thiazide drugs may increase the responsiveness to tubocurarine

The antihypertensive effects of thiazides may be enhanced in the postsympathectomy patient. Thiazides may decrease arterial responsiveness to norepinephrine. This diminution is not sufficient to preclude effectiveness of the pressor agent for therapeutic use

**PREGNANCY:** Pregnancy Category C. Thiazides cross the placental barrier and appear in cord blood. The use of thiazides in pregnancy requires that the anticipated benefit be weighed against possible hazards to the fetus. These hazards include fetal or neonatal jaundice, thrombocytopenia, and possibly other adverse reactions which have occurred in the adult

**NURSING MOTHERS:** Thiazides appear in human milk. If use of the drug is deemed essential, the patient should stop nursing

**PEDIATRIC USE:** Safety and effectiveness in children have not been established

## ADVERSE REACTIONS

**Propranolol hydrochloride (INDERAL® LA):** Most adverse effects have been mild and transient and have rarely required the withdrawal of therapy

**Cardiovascular:** Bradycardia, congestive heart failure, intensification of AV block, hypotension, paresthesia of hands; thrombocytopenic purpura, arterial insufficiency, usually of the Raynaud type

**Central Nervous System:** Lightheadedness, mental depression manifested by insomnia, lassitude, weakness, fatigue; reversible mental depression progressing to cataplexy; visual disturbances, hallucinations; an acute reversible syndrome characterized by disorientation for time and place, short-term memory loss, emotional lability; slightly clouded sensorium; and decreased performance on neuropsychometrics

**Gastrointestinal:** Nausea, vomiting, epigastric distress, abdominal cramping, diarrhea, constipation, mesenteric arterial thrombosis, ischemic colitis

**Allergic:** Pharyngitis and agranulocytosis, erythematous rash, fever combined with aching and sore throat, laryngospasm and respiratory distress

**Respiratory:** Bronchospasm

**Hematologic:** Agranulocytosis, nonthrombocytopenic purpura, thrombocytopenic purpura

**Auto-Immune:** In extremely rare instances, systemic lupus erythematosus has been reported

**Miscellaneous:** Alopecia; LE-like reactions, psoriasisiform rashes, dry eyes, male impotence; and Peyronie's disease have been reported rarely. Oculomucocutaneous reactions involving the skin, serous membranes, and conjunctivae reported for a beta blocker (practolol) have not been associated with propranolol

**Hydrochlorothiazide:**

**Gastrointestinal:** Anorexia, gastric irritation, nausea, vomiting, cramping, diarrhea, constipation, jaundice (intrahepatic cholestatic jaundice), pancreatitis, sialadenitis

**Central Nervous System:** Dizziness, vertigo; paresthesias; headache, xanthopsia

**Hematologic:** Leukopenia, agranulocytosis, thrombocytopenia, aplastic anemia

**Cardiovascular:** Orthostatic hypotension (may be aggravated by alcohol, barbiturates, or narcotics)

**Hypersensitivity:** Purpura, photosensitivity, rash; urticaria, necrotizing angitis (vasculitis, cutaneous vasculitis); fever, respiratory distress, including pneumonitis, anaphylactic reactions

**Other:** Hyperglycemia; glycosuria; hyperuricemia; muscle spasm; weakness, restlessness, transient blurred vision

Whenever adverse reactions are moderate or severe, thiazide dosage should be reduced or therapy withdrawn

\*The appearance of these capsules is a registered trademark of Ayerst Laboratories

## REFERENCES

1. Data on file, Ayerst Laboratories
2. Ravid M, Lang R, Jutrin I. The relative antihypertensive potency of propranolol, oxprenolol, atenolol, and metoprolol given once daily. *Arch Intern Med* 1985;145:1321-1323
3. Sumiyi L, Vivian AS, Finsol KB, et al. Potassium loss associated with hydrochlorothiazide versus chlorthalidone. *Clin Ther* 1981;4:308-320
4. Ram CVS, Garrett BN, Kaplan NM. Moderate sodium restriction and various diuretics in the treatment of hypertension. *Arch Intern Med* 1981;141:1015-1019

**Ayerst**

AYERST LABORATORIES  
New York, NY 10017

© 1986 Ayerst Laboratories

5593/486

## Impossible Possibilities

As tort reform efforts fail or as their success is compromised by crippling amendments to proposed legislation, the disastrous consequences of such failings come closer to reality. It's time to wonder if the opponents of tort reform legislation have considered the future of our society in the event nothing is done to change the prevailing trends.

Consider a future when it is impossible to find a physician who will prescribe medication for a pregnant woman or agree to deliver her baby. It is possible. In the past five years, thousands of physicians have stopped accepting maternity cases. Already many pregnant women living in smaller rural communities must travel more than a hundred miles making round trips to their physicians' offices.

Consider a future when the victims of accidental trauma will receive only first aid treatment rendered under the relative immunity of a Good Samaritan law. It is possible. Already scores of orthopedic surgeons, general surgeons, and neurosurgeons have stopped accepting injury cases. Many such patients now must be transported by air or ground ambulances to another community or even another state to receive definitive treatment.

Consider a future when we will watch our grandchildren suffocate to death with bulbar polio and die in the convulsive throes of tetanus or rabies because immunizing vaccines were not available. It is possible. Already the major producers of such vaccines have withdrawn from the market, and prospective consumers have had to wait for the supply to meet the demands.

Consider a future when we can applaud the demise of the tobacco industry as it succumbs to the

product liability assaults. Next on the list might be the dairy industry for its reckless unconcern in pouring tons of cholesterol down our throats in the past hundred years.

The ensuing cascade of destruction will be endless. The anti-industrial revolution has begun and its end is nowhere in sight. It is possible. Already manufacturers of safety equipment, athletic gear, infant care products, security devices, toys, recreational vehicles, prepared foods, and many other items have closed their doors, gone out of business, and added their employees to the jobless list.

Consider a future when municipalities cannot afford to maintain police departments or pay the salaries of their employees. It is possible. Already some government entities are insolvent because of judgments against them in favor of an injured plaintiff.

Consider a future when the most experienced and competent members of the medical profession take early retirement to escape the real or potential harassment of threatened litigation. It is not only possible. It is already happening.

Consider a future when liability insurance is no longer available to any business or individual in this nation. When — not *if* this happens, the present opponents of tort reform legislation will lead the demand that "the government" provide liability insurance for everyone, identical to the way it has "provided" medical care to our elders during the past twenty years.

As a taxpayer, how does that possibility strike you? Impossible?

—MRJ



**T**o my friends in the OSMA: This is my last President's Page.

Again, Lucile and I wish to thank every one of you for allowing me to serve as your president for the past year. This is indeed a privilege and an honor.

I believe we have had a good year. We have not succeeded in all our objectives, but many worthwhile goals have been attained.

On the national level, Dr Perry Lambird and Dr Joe Crosthwait have been selected to serve physicians of the entire nation. We have seen a nationwide effort for a return to reason in lawsuit abuse. Many states have been successful, and all are still working valiantly in these endeavors.

I believe we *all* have improved communications with our senators and representatives in Washington.

On the state level we have had successful seminars for loss prevention and our own PLICO has maintained its excellent reputation of low premiums for occurrence-type coverage.

Your House of Delegates voted unanimously to support PLICO with a financially advantageous assessment with great value received. They also voted financial support for our coalition of "Oklahomans Against Lawsuit Abuse." The coalition now repre-



sents over 300,000 Oklahomans who desire a "Return to Reason" on liability abuse. We have seen three successes that were supposed to have been impossible.

- A victory in the House Judiciary Committee.
- A victory on House floor.
- Now, a successful effort to bring the bill out of the Senate Rules Committee to the floor of the Senate.

We all now must work for a victory in the Senate. I hope victory will be ours by the time this letter reaches you.

We now must support those who have helped us in the House and the Senate. We need to give them both vocal and financial support. We need to work both through OMPAC and as individuals. We need to continue to elect dedicated people to our government offices.

We must continue to

**GET INVOLVED — PARTICIPATE**

I now pass the pen to your new president, Dr Norman Dunitz. I know he will serve you well. Support him — Oklahoma must continue to move forward.

Sincerely,

*Elvin M. Amen, M.D.*



# The Noninvasive Vascular Laboratory

## An Update

### Part II: Current Uses — Evaluation of Arterial Circulation

(Second of Three Parts)

M. ALEX JACOCKS, MD, and THOMAS L. WHITSETT, MD

Part one of this series reviewed the basic technological devices and methods that are used in noninvasive vascular laboratories. Part two deals with the evaluation of arterial problems and how these procedures can be helpful.

#### Lower Extremity Arterial Evaluation

A number of indications exist for the noninvasive lower extremity arterial evaluation. Vascular rest pain (ischemia) and claudication (ischemia with exercise) can be distinguished from other types of lower extremity pain. Lower extremity arterial studies are useful as objective means to follow patients with known vascular disease. Determining if perfusion is adequate to heal a foot lesion or an amputation site is also a useful role for noninvasive arterial studies, as is the anatomic localization of hemodynamically significant lesions.

The first part of the lower extremity arterial evaluation usually involves Doppler waveform analysis as noted in Figures 1 and 2. Using an 8-MHz probe, an experienced examiner can accurately identify normal and abnormal arterial sounds. Normal large vessels, such as the femoral artery, emit a triphasic signal that reflects the systolic forward flow and diastolic phase reverse flow, followed by a second forward flow phase as the elastic vessel compensates

for the increased blood volume in the vessel. Distal to any hemodynamically significant arterial stenosis or occlusion, the waveform is dampened; that is, the amplitude of the velocity wave is decreased, the peak is delayed, and the reverse flow component is attenuated or absent. As vessels become more calcified and rigid, the sound becomes monophasic, losing that elastic second forward flow. The voltage output from the Doppler ultrasound unit is used to generate an analog waveform that is kept in the record and is used to objectively identify normal and abnormal flow patterns.

The next most commonly used tests in the vascular laboratory are the lower extremity segmental pressures. Blood pressure cuffs are placed around various segments of the extremity, and the pressure in the cuff is slowly released while the technician listens with a Doppler instrument for the return of arterial sounds at the ankle. The highest pressure heard from the posterior tibial or dorsalis pedis is then compared to the patient's brachial systolic blood pressure. The pressure values as well as the ratio of ankle pressure to brachial pressure (ankle:arm index) are useful in quantitating the patient's occlusive disease and in following a patient's disease or postoperative course.<sup>1</sup>

The normal ankle pressure is equal to or slightly greater than the brachial pressure. Normal pressure gradients between adjacent levels (such as above the knee, below the knee) are less than 20 mmHg. A significant proximal stenosis may mask the detection of distal arterial disease. A proximal thigh pressure

From the Peripheral Vascular Laboratory, Department of Surgery, University of Oklahoma College of Medicine, Oklahoma City, Oklahoma.

Direct correspondence to M. Alex Jacocks, MD, Assistant Professor, Department of Surgery, University of Oklahoma College of Medicine, PO Box 26307, Oklahoma City, Oklahoma 73126.

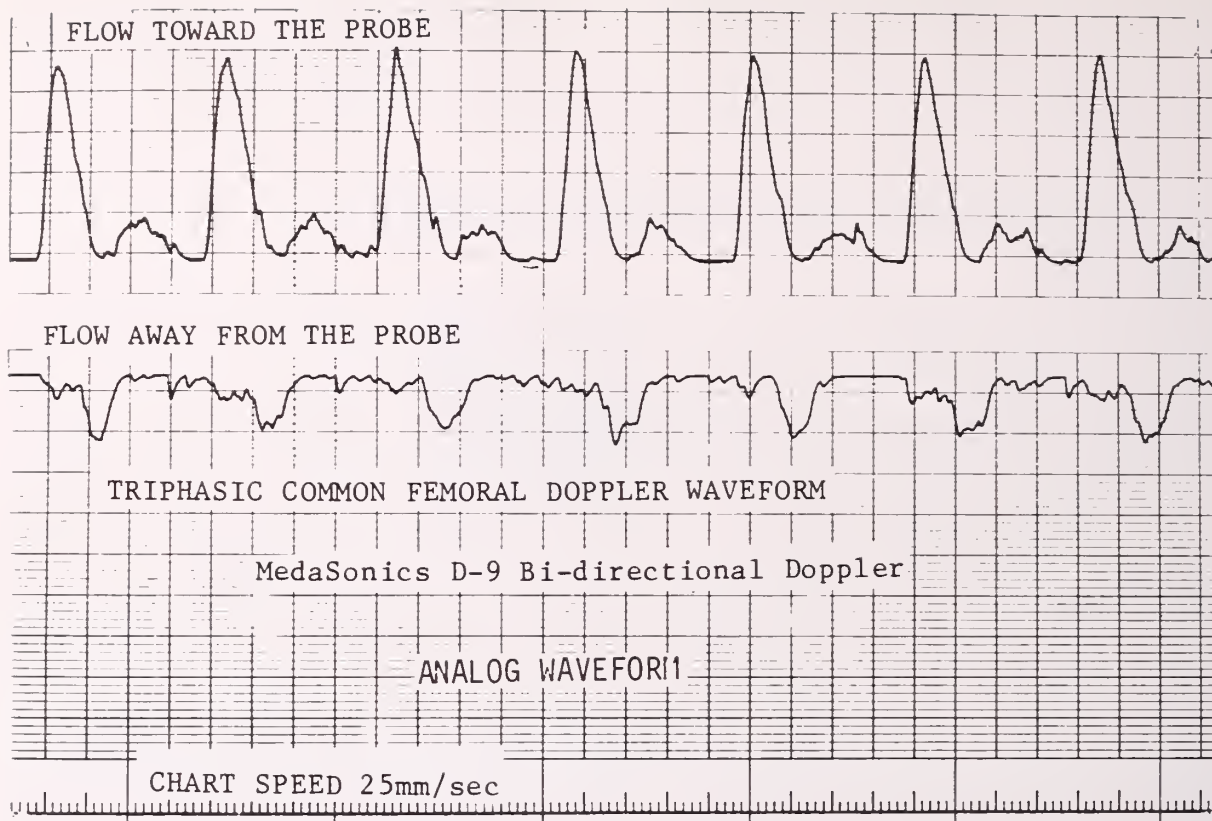


Fig 1. — Normal femoral artery waveform (see text).

that is 20 mmHg less than the brachial artery pressure suggests inflow disease in the aorta or iliac vessels. Above-knee pressures 20 to 30 mmHg less than the proximal thigh suggests superficial femoral artery disease; below-knee pressures 20 to 30 mmHg less than the above-knee area suggest distal superficial femoral or popliteal disease. Finally, ankle pressures 20 to 30 mmHg less than the below-knee area suggest tibial or peroneal disease.

Limping or pain in the leg after exercise implies claudication. When the muscles of the leg are exercised, oxygen consumption and the oxygen requirement of the muscle increase with a corresponding vasodilatation resulting in an increased flow.<sup>2</sup> In patients with arterial occlusive disease the ability to increase flow is limited, resulting in a drop in blood pressure across the stenosis. In the lower extremity arterial evaluation, a standardized form of exercise is performed; it consists of the patient's walking on a treadmill, at a 10% grade, at 2 miles an hour for 5 minutes, or until pain limits the ability to walk. Those patients who cannot walk undergo a 5-minute period of arterial occlusion, with a pneumatic cuff on the thigh creating distal ischemia. With release of the cuff a reactive hyperemia ensues, causing the same physiologic drop in blood pressure across the

stenotic area if the degree of stenosis becomes limiting. The exercise test is preferred since it will produce the desired symptoms, and an immediate postexercise assessment will determine if ischemia is present.

Guidelines for segmental pressures at rest and after exercise are used to classify the degree of atherosclerotic occlusive disease. Patients with *minimal* disease are asymptomatic on the treadmill and have normal systolic pressure ratios at rest, but have slightly decreased ankle:arm indices (A:AI) after exercise. Patients with *mild* disease develop symptoms on the treadmill, but can finish walking and have resting (A:AI) greater than 0.8 and postexercise indices greater than 0.5. *Moderate* disease patients are unable to walk a full 5 minutes because of claudication, have resting A:AI less than 0.8 with postexercise values less than 0.5. Patients with *severe* disease usually develop symptoms within the first 90 seconds on the treadmill and stop within 3 minutes. Their resting A:AI is usually less than 0.5, and their postexercise A:AI is usually less than 0.15. In nondiabetic patients, ankle pressures less than 35 mmHg are compatible with rest pain due to ischemia, while pressures less than 55 mmHg in diabetic patients are considered compatible with rest pain.

Three hundred seventy-nine consecutive limbs



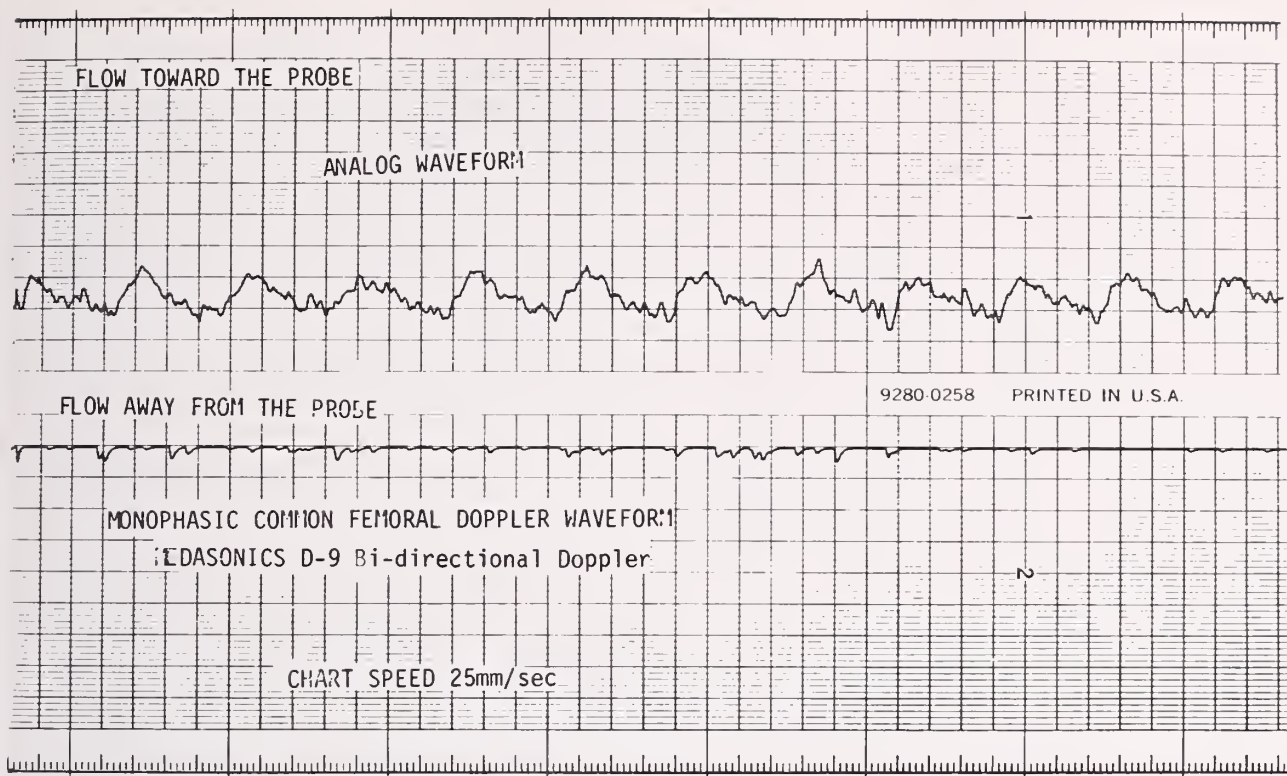


Fig 2. — Abnormal femoral artery waveform distal to a partial obstruction (see text).

were evaluated by both segmental pressures and arteriography at Oklahoma Memorial Hospital, Oklahoma City, with accuracy results listed in the table.<sup>3</sup> These tests are also applied to patients with poorly healing foot lesions. Nondiabetics with foot ulcers and whose ankle blood pressures are less than 50 mmHg have a very poor probability of healing unless inflow is improved. In diabetic patients, because of their corresponding small-vessel disease, an ankle blood pressure of 80 mmHg is needed to ensure the likelihood of healing.

Similar techniques are also applied to evaluations of patients with impotence. While the majority of patients with impotence have a psychogenic component, there are individuals whose aortoiliac occlusive disease is so limiting that it causes impotence on the basis of poor arterial inflow. Using Doppler ultrasound and specially designed pressure cuffs, penile:brachial blood pressure ratios are obtained to identify patients with impaired arterial inflow as a contributing cause of their impotence. Ratios <0.65 are diagnostic, while ratios of 0.65 to 0.75 are consistent with but not diagnostic of a vasogenic cause of impotence.

The pulse-volume recording (PVR) test is also used in the lower extremity arterial evaluation (Fig 3).<sup>4</sup> It is particularly useful in diabetic patients with

calcified arterial walls and artificially elevated segmental pressures. Cuffs with known volumes and pressures are placed around the patient's leg at various positions. Limb volume beneath the cuffs is recorded as it varies with the arterial pulsation. The PVR is influenced by the flow through all the vessels (including collaterals) under the cuffs. It is less dependent on individual vessel compliance than are segmental pressures and so is especially valuable in patients with medial sclerosis.

Sensitivity, Specificity, and Accuracy of Noninvasive Lower Extremity Evaluation vs Arteriography in 379 Limbs				
N = 379				
True positive - 311	Sensitivity	$\frac{311}{311 + 2}$	= 99%	
False positive - 3	Specificity	$\frac{63}{311 + 3}$	= 95%	
True negative - 63	Accuracy	$\frac{311 + 63}{379}$	= 99%	
False negative - 2				



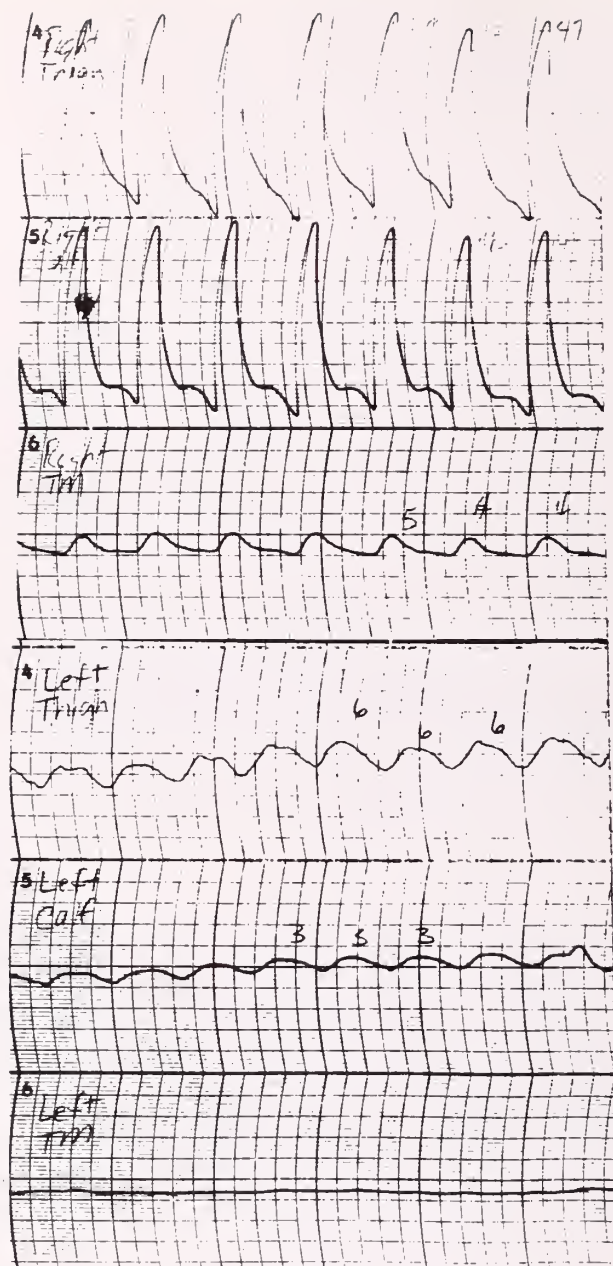


Fig 3. — Pulse volume recording (PVR) with good pulsations throughout the right leg but dampened pulsations distal to an obstructing lesion in the left leg.

The photoplethysmograph (PPG) is used occasionally in evaluating lower extremity arterial problems. It is a photoelectric cell that emits an infrared or laser light. When it is placed over the skin, an analog waveform based on pulsatile activity is generated. When used with tiny pneumatic cuffs, the PPG can determine digital blood pressures. It is also useful for qualitative assessment of pulsatile blood flow to the base or even the tip of a digit. It is helpful in assessing very localized disease, eg, thromboangiitis obliterans (Buerger's disease), scleroderma, and embolic phenomenon.

An additional test that is becoming more widely used is transcutaneous  $PO_2$  determination ( $tcPO_2$ ). A Clark polarizing electrode can be used to detect  $tcPO_2$  in the chest and in the extremities. The ratio (chest  $tcPO_2$ :leg  $tcPO_2$ ), as well as the rapidity of leg  $tcPO_2$  returns to normal after total arterial occlusion with a pressure cuff, are used prognostically to evaluate the arterial flow to an extremity. Many diabetic patients with nonhealing ulcers on their feet will have good segmental ankle pressures or PVR values but poor  $tcPO_2$  near the lesion. These findings are suggestive of arteriovenous shunting at the arteriolar level, which may account for part of the healing difficulties in these patients.

Upper extremity arterial evaluations by the noninvasive laboratory are also helpful. Arterial Doppler waveforms and segmental pressures with the patient's arms and head in different positions are useful in diagnosing thoracic outlet syndromes, subclavian steal syndrome, or thromboangiitis obliterans (Buerger's disease). PPG,  $tcPO_2$ , and skin temperature rewarming times after ice-water immersion are used to evaluate patients with Raynaud's phenomenon.

### Cerebrovascular Disease

Current noninvasive evaluation for extracranial cerebral vascular disease uses another type of air plethysmograph, the oculopneumoplethysmograph (OPG-G) and the duplex scanner (which combines pulsed B-mode ultrasound with pulsed Doppler ultrasound). For the OPG-G, a cup is placed over each of the patient's eyes after the sclerae are anesthetized. Arterial pulsations are detected within the eye globe and transmitted to a strip-chart recorder. Vacuum induced by the machine obliterates the arterial pulsations, and with a slow decrease in the amount of vacuum the arterial pulse waves return. The return of arterial pulse waves is indicative of the systolic blood pressure presented to the eye through the ophthalmic artery (the first branch of the internal carotid) (Fig 4).<sup>5</sup> This is an indirect test for assessing hemodynamically significant carotid lesions. The most common site of atherosclerotic occlusive disease in the head and neck is at the carotid bifurcation. In 130 carotid arterial examinations at Oklahoma Memorial Hospital in the past two years in patients who underwent both OPG-G and arteriography, there was a sensitivity of 84% and specificity of 91%, with an overall accuracy of 88%.<sup>3</sup> Oculopneumoplethysmography is good for identifying flow-limiting lesions, those of greater than 60% diameter stenosis;

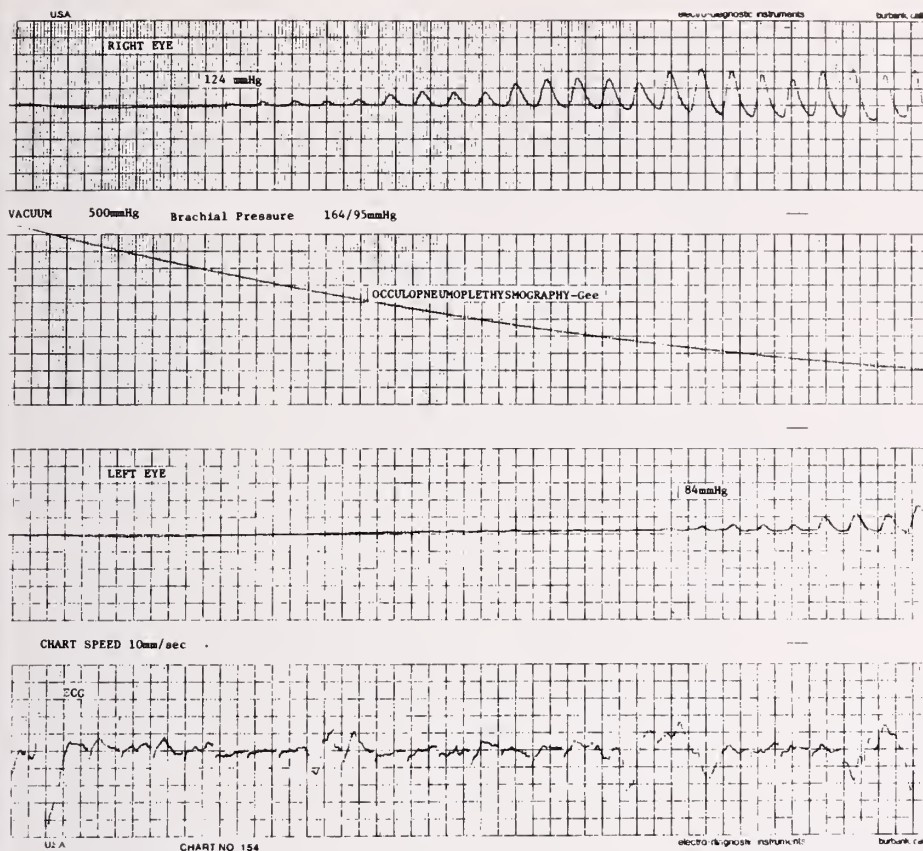


Fig 4. — Abnormal OPG suggestive of a flow-limiting lesion in the left carotid artery.

however, it will not identify non-flow-limiting stenoses, even if associated with an ulcerated plaque. Nevertheless, numerous studies have shown that 75% of patients with ulcerated plaques also have flow-limiting lesions.<sup>6</sup> The OPG-G is also useful for objective follow-up of patients after endarterectomy and for estimating the risk of carotid sacrifice in patients with large, invasive tumors in the neck.

The best noninvasive mechanism for anatomically identifying carotid lesions is the duplex scanner, which combines pulsed B-mode real-time ultrasound with a pulsed Doppler ultrasound. This instrument is used in conjunction with a spectral analyzer that aids in identifying the degree of flow significance of any identified lesions. While other methodologies exist, the OPG and duplex scanner are the main noninvasive techniques used at the OU Health Sciences Center and around the country. Correlation studies at Oklahoma Memorial Hospital between the duplex scanner and arteriography are still underway; however, 90% accuracy correlations have been reported.<sup>7</sup>

## References

1. Raines JK, et al: Vascular laboratory criteria for the management of peripheral vascular disease of the lower extremities, *Surg* 79:21, 1976.

2. Strandness DE Jr: Exercise testing in the evaluation of patients undergoing direct arterial surgery. *J Cardiovasc Surg* 11:192, 1970.
3. Jacocks MA, Powell P, Whitsett T: unpublished data, 1983.
4. Raines JK: The pulse volume recorder in peripheral arterial disease. In: Bernstein EF. *Noninvasive Diagnostic Techniques in Vascular Disease*. St. Louis: CV Mosby Co, 1982:360-369.
5. Gee W, et al: Ocular pneumoplethysmography in carotid occlusive disease. In: Peerless SJ and McCormick CW. *Microsurgery for Cerebral Ischemia*. New York: Springer-Verlag, New York Inc, 1980.
6. Cranley JT: Presidential address: Stroked — A perspective. *Surg* 91:537-549, 1982.
7. Flanagan DF, et al: The role of carotid duplex scanning in surgical decision making. *J Vasc Surg* 2:15-25, 1985.

*M. Alex Jacocks, MD, is an assistant professor in the Department of Surgery at the University of Oklahoma Health Sciences Center. A 1977 graduate of the university's College of Medicine, he is certified by the American Board of Surgery. Dr Jacocks is a Fellow of the American College of Surgeons and a member of the Southwestern Surgical Congress, Association for Academic Surgery, and Association for Surgical Education.*

*Thomas L. Whitsett, MD, is a professor of medicine and pharmacology in the OU Health Sciences Center's Department of Medicine. He was graduated from the university in 1962 and is certified by the American Board of Internal Medicine. He holds memberships in the American Society of Pharmacology and Experimental Therapy and the Society for Clinical Pharmacology & Therapeutics.*



# Biochemical Urine Screening: Rationale and Advantages

JOHNNY B. ROY, MD, and PAULA D. ROBINSON, MT

**Urine examination can be simplified and made more cost effective by utilization of newer test strips.**

The microscopic examination of urine sediment was regarded in the past as a valuable diagnostic procedure but recently has been criticized for taking a lot of technologists' time while still unable to provide significant diagnostic information. The biochemical screening of urine has improved tremendously in the past several years with the introduction of highly sensitive and specific test strips (dipsticks). These tests offer rapid and accurate detection of urinary tract infection and significantly reduce testing time and laboratory costs. The test strip approach, eg, Chemstrip 9\* (Bio-Dynamics, Indianapolis), to urinalysis screening for the rapid and accurate detection of urinary tract infection and disease has been suggested by several investigators. The diagnostic ability of this test strip to detect pyuria and bacteriuria may be considerably improved by using the four parameters — leukocyte esterase, nitrite, protein, and blood. The combined use of pads containing the reagents for these parameters provides greater sensitivity, specificity, and predictive values for determining pyuria.

Pyuria and bacteriuria are the most important indicators of urinary tract infection, and most laboratories still rely on the time-consuming microscopic examination of the sediment as part of the urinalysis. The microscopic urine examination is a subjective test that depends on the laboratory technologist's skill and other limiting variables which reduce the productivity of microscopy. However, it is possible to eliminate the sediment microscopy under certain specific, well-defined conditions by using the biochemical screening tests.

## Materials and Methods

In our study we decided to investigate the savings realized by implementing the use of Chemstrip 9\* compared to routine microscopic examination of urinary sediments.

The estimated percentage of normal and abnormal urines tested in the laboratory was obtained from a random weekly count of 475 samples (68% normal and 32% abnormal). The cost savings were based on

Summary of Cost Savings

	Expenses	Savings
Technologists salary		\$16,180.00
Supplies		1,390.51
Chemstrip 9*	\$3,622.50	
Total Savings		\$13,948.01

From the Urology Section and Laboratory Service, Veterans Administration Medical Center, Oklahoma City, Oklahoma

Direct Correspondence to Johnny B. Roy, MD, Chief, Urology Section, Veterans Administration Medical Center, 921 Northeast 13th Street, Oklahoma City, Oklahoma 73104.



a total yearly count of 35,309 urines calculated as 24,010 normal urines ( $35,309 \times 68\% = 24,010$  normal urines).

The \$16,180 saved in technologist's salary was based on an hourly rate of \$10.50, with four minutes of time spent per microscope slide. The technologist's time required to perform one routine microscopic examination was based on two minutes for preparation and two minutes to read and record the results.

Supplies consisted of slides, stain, and pipettes for a total of \$1,390.51, with additional laboratory expenses of \$4,622.50 for Chemstrip 9\*. The savings realized — \$13,948.01 — is presented in the table.

## Discussion

The hospital laboratory plays a significant role in providing a cost-effective and rapid diagnostic methodology for the evaluation of urinary tract pathology. Tests used for the detection and diagnosis of urinary tract infection should be specific, sensitive, and inexpensive. These terms are definite and quantifiable, a direct contrast to the microscopic urine examination that depends on such subjective variables as technologists' skill, collection, storage conditions, and assay conditions.

The biochemical part of urinalysis has improved tremendously through the introduction of the highly sensitive and specific dipsticks. The reading of strips

like Chemstrip 9\* is very reproducible, and with the introduction of this strip the urinalysis procedure has the potential to become more standardized. The results of several studies show that this method of screening can perform even better and certainly give more consistent results than the microscopic urinalysis.<sup>1,2</sup>

Biochemical screening has the ability to accurately detect pyuria of  $>5$  WBC/HPF and bacteriuria  $>10^5$  cells/ml.<sup>3-5</sup> The ability of leukocyte esterase in the strip to detect lysed or intact leukocytes is an important feature, since problems in transporting the urine specimens may cause a delay in the microscopic examination. Several studies have shown that the leukocyte esterase activity is more sensitive than the sediment microscopic examination in detecting pyuria.<sup>6,7</sup> The leukocyte esterases that are released from the granulocytes have the specific ability to catalyze the hydrolysis of an indoxylcarbonic acid ester to indoxyl, which further reacts with a diazonium salt to produce a purple color (Fig). It is a well-known fact that many leukocytes in the urine lyse upon standing, and this may be the reason why the leukocyte is the most often overlooked microscopic abnormality.<sup>8,9</sup> The lysis of leukocytes occurs not only upon standing, but also in samples of high pH and low specific gravity.

The potential for the use of Chemstrip 9\* in

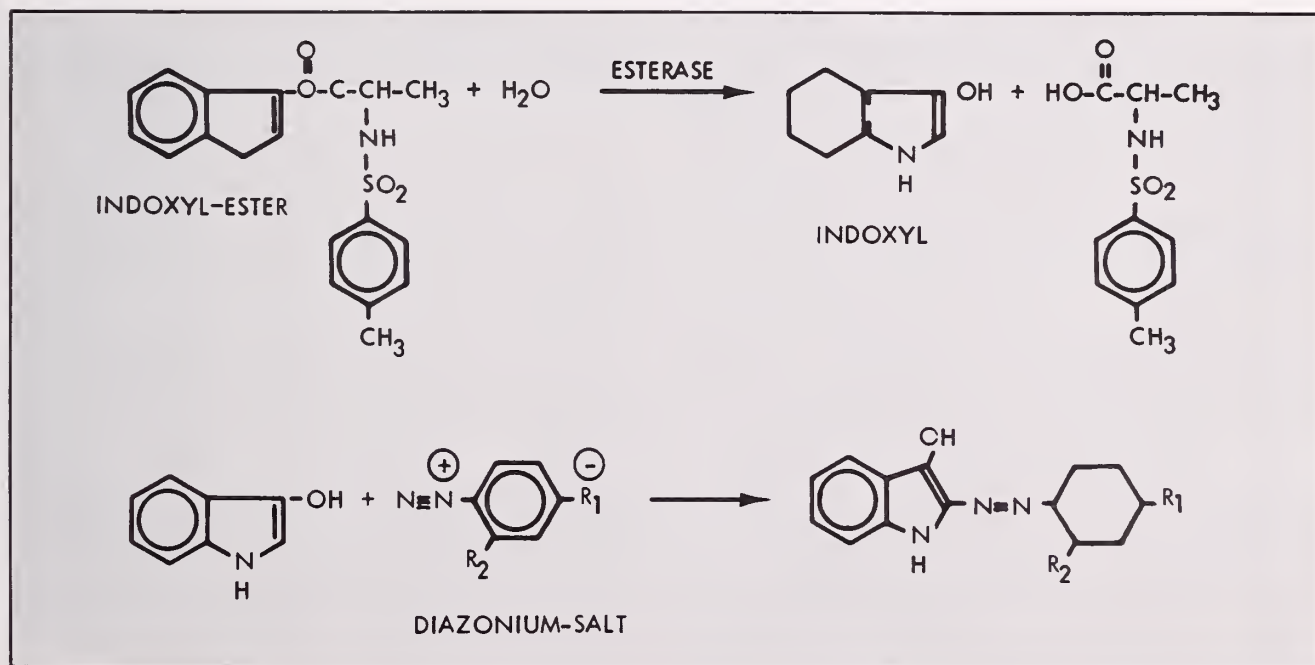


Fig 1 — Reaction mechanism of esterase

urinalysis screening is much greater than simply reducing the work load; it also offers a more standardized interpretation. These advantages will be realized in better patient care and will also provide a more economical approach to urine testing. □

**Acknowledgment:** The authors are indebted to Ms Dottie Grins for her editorial help.

#### References

1. Avent J, Schumann B, Vars L: Comparison to chemistry leukocyte test with standardized Papanicolaou-stained urine sediment evaluation. *Lab Med* 14:163-166, 1983.
2. Gillenwater JY: Detection of urinary leukocytes by Chemstrip-L. *J Urol* 125:383-384, 1981.
3. Chernow B, Zaloga GP, Soldano S, Quinn A, Lyons P, McFadden E, Cook D, Rainey TG: Measurement of urinary leukocyte esterase activity: A screening test for urinary tract infections. *Ann Emerg Med* 13:159-164, 1984.
4. Brumfit W: Urinary cell counts and their value. *J Clin Path* 18:550-55, 1965.
5. Stamm WE: Measurement of pyuria and its relation to bacteriuria. *Am J Med* July:53-58, 1983.
6. Wenk RE, Dulta D, Rudert J, Kim Y, Steinhagen C: Sediment microscopy nitrituria, and leukocyte esteraseuria as predictors of significant bacteriuria. *J Clin Lab Autom* 2:117-121, 1982.
7. Kusumi RK, Grover PJ, Junin CM: Rapid detection of pyuria by leukocyte esterase activity. *JAMA* 245:1653-1655, 1981.

8. Kierkegaard H, Feldt-Rasmussen U, Horder M, Anderson HJ, Jorgensen PJ: Falsely negative urinary leukocyte counts due to delayed examination. *Scand J Clin Lab Invest* 40:259-261, 1980.
9. Herlihy RE, Wilkerson RG, Roy JB: New and rapid method for detection of pyuria by leukocyte esterase reaction. *Urology*, XXII(2):138-147, 1984.

*Johnny B. Roy, MD, is an associate professor of urology at the University of Oklahoma College of Medicine and chief of urology at the VA Medical Center in Oklahoma City. He is certified by the American Board of Urology and is a member of the American College of Surgeons, International College of Surgeons, American Fertility Society, Society of University Urologists, and the American Andrology Society. He is a 1962 graduate of the Faculty of Medicine, Baghdad University, Iraq.*

*Paula D. Robinson, MT, an agency certified medical technologist (ASCP), is an adjunct assistant professor and education coordinator of the VA portion of the OU Health Sciences Center Medical Technology Program. She is a member of the American Society of Medical Technologists (ASMT) and the National Committee for Clinical Laboratory Standards (NCCLS).*

## Coming in May . . .

Manuscripts being considered for publication in May include a paper on improvement in the birth weight distribution among white newborns and the first of a four-part series of articles on endoscopic laser therapy for gastrointestinal disorders. Also being prepared is the third and final part of the series "The Noninvasive Vascular Laboratory," an evaluation of the venous system.

# The Physician and Worker's Compensation in the State of Oklahoma

JOHN W. ELLIS, MD

**Many patients are denied care because of their physician's reluctance to treat worker's compensation injuries. This reluctance may be due to a lack of familiarity with and training in the medical-legal procedures involved.**

**M**any physicians are reluctant to treat or assist patients involved in litigation.

Medical school curriculums devote little if any time in preparing physicians to interact with the judicial system. This lack of knowledge fosters fear and misunderstandings between those in the medical and legal professions.

A large amount of litigation requires expert medical opinion. Many people are involved in motor vehicle accidents and other personal injuries. With working people spending half their waking hours on the job, there are many worker's compensation claims. The Worker's Compensation Court of the State of Oklahoma processed 152,843 claims in 1984.<sup>1</sup>

We physicians will be involved with the judicial system many times in our careers. We can naively ignore the social aspects of patient care, or we can further our education in medical-legal matters.

As physicians we can assist the Worker's Compensation Court of the State of Oklahoma by following the court's standard procedures. The attending physicians' reports are most helpful to the court.<sup>2</sup>

Two books will be helpful in working with the Worker's Compensation Court — the 1984 American Medical Association "Guides to the Evaluation of Permanent Impairment," 2nd edition, and the 1984 "Handbook" of the "Worker's Compensation Court State of Oklahoma."

You may send \$29.00 for the AMA "Guides" and \$4.00 for the "Handbook" to the Oklahoma State Medical Association, 601 Northwest Expressway, Oklahoma City, OK 73118, (405) 843-9571.

If you need only the "Handbook," you may pick it up at the Worker's Compensation Court for \$2.00 or \$3.25 by mail at the Worker's Compensation Court, Jim Thorpe Building, 2101 North Lincoln, Oklahoma City, OK 73105.

The physician needs to be familiar with the AMA "Guides" and the following sections of the Worker's Compensation Court "Handbook":

- Rule 20 Medical Evidence, p 4
- Form 4 Initial Physician's Report and Notice of Treatment, p 44
- Form 19 Request for Review of Charges for Medical or Rehabilitative Services, p 54

Additional Form 4s and Form 19s may be obtained from the Worker's Compensation Court in Oklahoma City, (405) 521-8025, or Tulsa, (918) 581-2714.

## Medical Reports

Persons filing worker's compensation claims waive some of their rights to physician-patient privilege

Direct correspondence to John W. Ellis, MD, 225 Northwest 13th Street, Oklahoma City, Oklahoma 73103.



and confidentiality. All involved parties have a right to the medical information regarding the claim. The court may exclude the oral testimony or the verified or declared report of any physician whose report has been withheld from a party who made timely written demand therefor.<sup>3</sup>

Medical reports are similar to the normal history and physical examination. Particular attention is paid to the physician's opinion as to whether the injury was job related, caused time off from work, necessitated or will necessitate treatment, or caused any permanent impairment.

## **The majority of claims are handled without litigation or the patient's obtaining an attorney.**

Rule 20 of the Worker's Compensation Court "Handbook" states that a medical report shall contain<sup>4</sup>:

(a) A complete history of the claimant, including all previous relevant or contributory injuries with a detailed description of the present injury.

NOTE: Failure of the patient to inform the physician of past injuries, or failure to include those past injuries in the medical reports will result in a legally incompetent report.

(b) The complaints of the patient.

(c) The physician's findings on examination, including a description of the examination and any diagnostic tests and x-rays.

(d) The date and cause of the alleged injury and whether, in the physician's opinion, it is job related.

(e) What medical treatment has already been rendered and what treatment, if any, the physician recommends for the future.

(f) What physical rehabilitative procedures have already been rendered and what rehabilitative procedures, if any, the physician recommends for the future.

(g) The period during which the claimant was

temporarily and totally disabled. If the claimant remains temporarily and totally disabled, the physician should so indicate. If the temporary total disability has already terminated, he must indicate the date upon which it was terminated.

NOTE: Temporary total disability means that the patient cannot return to the work or type of work he was doing when injured and not just any work. The temporary total disability status continues until the patient has received maximum benefit from medical therapy or has reached a stage where further medical therapy will not decrease his impairment.

Include statements as to the patient's ability to work. Indicate if and when you released the patient to full or partial duties. Indicate the limitations you have placed on the patient's activities.

(h) The physician's evaluation of the extent of any impairment with a clear indication as to whether it is temporary or permanent in nature.

(i) Any other detailed factors upon which the physician's evaluation of permanent impairment is based, including a statement that the evaluation is in substantial accordance with the "Guides to the Evaluation of Permanent Impairment," 2nd edition, as published by the American Medical Association in 1984. Whenever the physician deviates from the "Guides," the basis for his deviation shall be stated together with full medical explanation. If the injury occurred before July 1, 1978, the physician's testimony need not be based on or in accordance with the "Guides" but must include such detailed factors upon which his evaluation of permanent disability is based.

NOTE: On final reports where you have computed permanent impairment to the "WHOLE MAN," as described below, include in your report this statement: "This evaluation is in substantial accordance with the 'Guides to the Evaluation of Permanent Impairment,' 2nd edition, as published by the American Medical Association in 1984." Failure to include this statement will make the report legally incompetent.

(j) Finally, the report itself must be signed by the physician and be verified or contain a written declaration, made under the penalty of perjury, that the report is true. The following form for the declaration

is suggested: "I declare under penalty of perjury that I have examined this report and all statements contained herein, and to the best of my knowledge and belief, they are true, correct, and complete."

NOTE: Include in all reports and billings this statement: "I declare under penalty of perjury that I have examined this report and all statements contained herein, and to the best of my knowledge and belief, they are true, correct, and complete."

### Initial Patient Visit

Phone the employer to verify employment and to notify the employer that you are beginning treatment. The employer may also have the insurance carrier address.

Complete the Form 4 and/or prepare a narrative report and mail to:

- Employee and/or his attorney if he has obtained legal counsel
- Employer
- Employer's insurance carrier. Along with your report enclose a current statement for patient services. This will help in keeping fee payments current. The carrier can be obtained by calling the court: Oklahoma City (405) 521-8025; Tulsa (918) 581-2714

### Interim Patient Visits

Send a short progress report, including an opinion as to whether the patient is still temporarily totally disabled, along with a current bill to the:

- Employee or his attorney
- Employer
- Insurance company: — include statement for current fees for service. This will help avoid the patient suddenly having his temporary total disability payments stopped because of the lack of information. Including your statement of fees will help keep payments current.

### Final Patient Visit

Prepare a summary report and include:

- Treatments and services rendered
- Date treatments terminated
- Date patient was released to work
- Whether the patient can return to the same work as before the injury
- Whether the patient has any permanent impairment

- Computation of any permanent impairment
- Form 19 final billing

Send the report and Form 19 to:

- Employee or his attorney
- Employer
- Insurance company
- Worker's Compensation Court

### Computing Permanent Impairment

Physicians evaluate impairment and courts evaluate disability. In Oklahoma, impairment and disability are the same. An amputated finger is the same in a laborer or pianist. Use the term *impairment* rather than *disability* in your computations.

**Whole Man Impairment.** If the injury is to the head, neck, back, shoulders, hips, or internal organs (excluding eyes and ears) the injury is considered an injury to the *whole man*. Use the 1984 AMA "Guides" to evaluate the injury. Injuries occurring before January 1, 1985, need to be computed using the 1977 AMA "Guides to the Evaluation of Permanent Impairment."<sup>5,6</sup> Make all the computations to the *whole man*. Do not use the term *upper extremity* when evaluating the shoulder or *lower extremity* when evaluating the hip, but convert to the *whole man* impairment as outlined in the "Guides" in Table 20, page 23, for *arm to whole man* and in Table 44, page 46, for *leg to whole man*.

Do not combine the individual *whole man* impairments as instructed in the "Guides." The Worker's Compensation Court requires that the individual *whole man* impairments be *added*. For instance: 10% impairment of the back and 16% impairment of the lumbar 5 nerve root are added to total 26%, not the 24% that would be found using the Combined Values Chart at the back of the "Guides."<sup>7</sup>

**Scheduled Members.** Injuries to the extremities distal to the shoulder and hip joints are considered injuries to *scheduled members*.<sup>8,9</sup> You may use whatever method, including the "Guides," you deem appropriate to evaluate *scheduled members* impairment.

The court's definitions of body parts are somewhat different from those in the "Guides." A *shoulder* injury is an injury to the *whole man* and not an extremity or arm injury. The *arm* is below the shoulder joint to and including the elbow. The *hand* is from below the elbow (including the radius, ulna, and wrist bones) to the metacarpophalangeal joints. The *fingers* are from the metacarpophalangeal joints distally.<sup>10</sup>

The *legs* and *feet* are similar. The *hip* is a *whole*



man impairment. The *leg* is from below the hip joint to and including the knee. The *foot* is below the knee (including the tibia, fibula, and ankle bones) to the metatarsophalangeal joints. The *toes* are from the metatarsophalangeal joints distally.<sup>11</sup>

Amputations are computed by statute and not the "Guides."<sup>12</sup> Amputations:

At distal interphalangeal joint	= 50% <i>finger or toe</i>
At either proximal or metacarpo/tarsal joint	= 100% <i>finger or toe</i>
Below elbow	= 100% <i>hand</i>
Below knee	= 100% <i>foot</i>
At or above elbow	= 100% <i>arm</i>
At or above knee	= 100% <i>leg</i>

**Ears.** *Ears*, or hearing impairment, is determined according to Rule 37, pages 7 and 8, of the "Worker's Compensation Handbook." Include a statement that you are complying with Rule 37.

**Eyes.** *Eyes*, or visual impairment, is determined by using Rule 38, page 8, of the "Worker's Compensation Handbook." Include a statement that you are complying with Rule 38.

## Dealing with Attorneys

The majority of Worker's Compensation claims are handled without litigation or the patient's obtaining an attorney. There were 152,843 claims processed in Oklahoma in 1984. An equivalent of 14% of claims (21,240) were heard by the Worker's Compensation Court with some type of court order being issued in 1984.<sup>13</sup>

The patient, his attorney, and the respondent/defendant attorney are entitled by statute to the information in the patient's medical records.


Work with the patient's attorney, and do not hesitate to ask for legal advice concerning the patient's claim. Have a clear understanding of your charges with both the patient and his attorney. The patient's attorney can assist in getting your bill paid by the Worker's Compensation Court.

The court takes into consideration that it is costly and time-consuming to have physicians actually appear before the court.<sup>14</sup> If you treat a patient injured on the job, you need not be fearful that you will have to appear in Worker's Compensation Court. Your medical reports will be considered expert medical testimony.

Occasionally you may be deposed by either respondent or claimant attorney to clarify your report. This is not as traumatic as it sounds. One of the attorneys will contact you and ask for a time to take the depo-

sition. The deposition should be taken in your office at your convenience. The setting will be informal and will usually include the respondent and claimant attorney and a court reporter. Recording the deposition may take 30 minutes to an hour. Many times the taking of the deposition will be cancelled because one of the attorneys may not appear, or the objection to your report will be withdrawn. You are the expert witness. You need not be defensive nor an advocate for either side. Think about each question asked. Answer to the best of your ability based upon your examinations of the patient and the patient's records.

Many Oklahoma workers are denied care from the physician of their choice because of the physician's reluctance to become involved in medical-legal procedures in which he does not feel comfortable. Work with the system. You will not be penalized for errors of inexperience. The patient and the court will be appreciative.

Consultation with a knowledgeable attorney is recommended as you become familiar with the procedures of the Worker's Compensation Court. 

*Editor's note:* Readers who would like to have samples of an initial physician's report, Form 4, interim physician's report, final physician's report, or Form 19, as mentioned in this article, may obtain them by writing to the author.

## References

1. Statistics, Worker's Compensation Court, personal communication Administrator's office, April 17, 1985.
2. Honorable Gary Sleeper, "OSMA Worker's Compensation Seminar," Feb 2, 1985.
3. Rule 24, *Handbook of the Worker's Compensation Court, State of Oklahoma*, p 24, p 5, 1984.
4. Rule 20, *Handbook of the Worker's Compensation Court State of Oklahoma*, p 4, 1984.
5. Honorable Gary Sleeper, "OSMA Worker's Compensation Seminar," Feb 2, 1985.
6. Honorable Bill J. Cross, personal communication, April 26, 1985.
7. Honorable Gary Sleeper, "OSMA Worker's Compensation Seminar," Feb 2, 1985.
8. Rule 23, *Handbook of the Worker's Compensation Court, State of Oklahoma*, p 5, 1984.
9. Title 85 Oklahoma Statutes, S 22, *Handbook of the Worker's Compensation Court, State of Oklahoma*, p 21, 1984.
10. Title 85 Oklahoma Statutes, S 22, *Handbook of the Worker's Compensation Court, State of Oklahoma*, p 21, 1984.
11. Title 85 Oklahoma Statutes, S 22, *Handbook of the Worker's Compensation Court, State of Oklahoma*, p 21, 1984.
12. Title 85 Oklahoma Statutes, S 22, *Handbook of the Worker's Compensation Court, State of Oklahoma*, p 21, 1984.
13. Statistics, Worker's Compensation Court, personal communication Administrator's office, April 17, 1985.
14. Rule 20, *Handbook of the Worker's Compensation Court State of Oklahoma*, p 4, 1984.

*John W. Ellis, MD, specializes in occupational medicine. A 1968 graduate of the University of Oklahoma College of Medicine, he holds memberships in the American Academy of Family Practice, American College of Legal Medicine, and American Occupational Medicine Association.*



# The Establishment of Health Care Policy in the United States

EDWARD N. BRANDT, JR., MD, PhD

The following is an address delivered by Dr Brandt during the Scientific Session of the OSMA's 1985 Annual Meeting last May. Its message — that physicians can and should become involved in Washington's policy-making — remains valid.

**M**y topic is federal health policy, its development, and ways it can be influenced. These thoughts are based upon my four years in Washington as a health policymaker and include both the theoretical and practical aspects of this process.

The first major point is that the development of health policy is very much an open one. There are multiple players and everyone gets an ear from someone. Indeed, at many steps in the process, the law requires that anyone who wishes to be heard must be heard.

Let me define the players in the health policy development game. First, there are the three branches of government: legislative, executive, and judicial. It is important to recognize that the judicial branch is playing a larger and larger role in the development of health policy through court decisions. In Congress, there are numerous committees and subcommittees that deal with one or more aspects of health policy. The major ones are the appropriations committees in both houses, the Labor and Human Resources Committee and the Finance Committee of

the United States Senate, and the Ways and Means Committee and the Health and Environment Subcommittee of the House of Representatives. Let me repeat that these are only a few of the total number of committees involved. Specifically, agricultural committees play a major role in health policy, especially in topics related to nutrition. Also, agricultural committees oversee the Food and Drug Administration (FDA).

In the executive branch, the principal department is Health and Human Services. Two of its four operating units, the Public Health Service and the Health Care Financing Administration (HCFA), are concerned entirely with health policy. Other departments are also involved, including the Veterans Administration, the Department of Defense, and the Agriculture Department. Depending upon how broad a definition you wish to give to health policy, virtually every department of the United States government is somehow involved.

**T**here are also numerous nongovernment groups that play a role in the development of health policy. These include professional societies such as the American Medical Association, the American Hospital Association, and so forth. A second is industry, including pharmaceutical manufacturers, medical equipment manufacturers, and insurance companies. A third are the professional/lay disease and/or organ groups such as the American Cancer Society or the American Heart Association. Fourth, there are

Direct correspondence to Edward N. Brandt, Jr., MD, PhD, Chancellor, University of Maryland at Baltimore, 520 West Lombard Street, Baltimore, Maryland 21201.

organized lay groups such as the American Legion, the American Association of Retired Persons (AARP), and others; and, finally, there is the public itself.

Health policy issues have as their origin the perception of a problem. To illustrate the complex interplay of all of these forces, let me give you one example. There was a broadly based perception that there was not enough research on the development of therapeutic approaches to rare diseases. A parents group was formed to try to determine the reasons for this and the steps that could be taken to correct it. I must point out that most of this was orchestrated

## **My advice is that you work closely with your medical societies.**

by a remarkable housewife from the Bronx who had two children with Tourette's syndrome. Through her diligent efforts in writing to various governmental agencies, elected officials, and the media, she was able to launch a complete look at this entire topic. Congressional hearings were held on the subject and such hearings included testimony from investigators, physicians who treated patients with rare diseases, patients, families of patients, and government officials. All of this activity culminated in passage of the so-called Orphan Drug Act.

This act basically did four things. First, it ordered the Department of Health and Human Services to set up an Orphan Products Board to coordinate all governmental efforts with respect to rare diseases and the development of therapeutic interventions for them. This board is chaired by the assistant secretary for health, and I chaired it for some two years. Second, it directed the FDA to set up an office for Orphan Drugs and authorized it to award grant funds to take promising drugs into human trials. Third, it set up tax benefits for companies that marketed drugs and/or devices that were to be used in diseases so rare that a profit could not be made. Finally, it required an annual report to Congress on the progress made in implementing the law.

As you know, the government operates largely by regulation. All but one of the requirements of this act requires the issuance of regulations providing

full opportunity for input by the public or any other interested parties. As a part of this system, the Orphan Products Board determined to hold public meetings at least once per year, and the annual report to Congress was accompanied by a public hearing. You will note that there are numerous opportunities in this process for input by nongovernmental organizations. The first was in the development of the law itself, including the hearing on it. Second was in the development of the regulations. Third was in the public hearings held by the Orphan Products Board and the fourth, the annual hearings held by Congress to review the implementation of the law. Hence, all of the actors in this drama had, and I can testify took advantage of, the opportunity to participate in the formulation of the policies concerning the development of therapies for rare diseases.

Virtually all health policy is developed this way although some laws, such as the Medicare Act, give the executive branch wide latitude in altering or changing the policy to meet new conditions. For example, the Health Care Financing Administration has the authority to determine which modes of treatment it will reimburse. This, again, is an open process permitting all of the actors to participate in the development of these policies. There is a set procedure for the determination of the efficacy and safety of each new therapeutic process that comes along and this procedure permits and encourages input by all of the actors in the health policy drama.

The point of this story is that the development of health policy is an open process. Anyone, or any group, informed or not, will be heard. Final decisions on these policies are the responsibility of the executive branch, but they undergo regular evaluation by Congress in its supervisory role and, if lawsuits are involved, will be reviewed by the judicial branch. The process is complex and for any particular policy issue may be much more circuitous than I have described.

**N**ow what can individual physicians do to have a voice in this process? That depends in part about what you are trying to accomplish. If you are trying to get a new policy adopted or a current one modified, you could begin with the executive branch, but you can also begin with Congress. If it is a policy in development, you will be given time to respond by writing your thoughts in regard to Federal Register notices.

My advice is that you work closely with your medical societies. In the first place, they can and will keep you informed about developments in



Washington, including new legislation and/or new policies being considered. You can then advise them as to the positions that you think the society should take. Second, you should feel free to write the unit of the executive branch responsible for the policy in question. I can assure you that your letter will be read. I can't assure you that it will be heeded. Finally, each of you has a congressman and two senators representing you in Washington. Each of them will have a staff member who is particularly concerned about health issues. You should be sure that they are aware of your views on the subject and the justification for them.

I would offer you three pieces of advice. First, your written correspondence should be concise and should address the issue that you are concerned about. Discussing the ancestry of the person responsible for the policy or making any other derogatory remarks about the policy will not help. Indeed, it will detract from your argument because it will suggest to the reader that your substance is weak. It goes without saying, of course, that your substantive arguments should be as strong as possible. Clearly, the same comment applies to correspondence with your elected officials or their staffs.

The second piece of advice is to be positive and recognize good actions as well as bad. If you know about a new policy that you agree with, or if your

**You cannot  
settle many  
health policy issues  
in isolation....  
become involved.**

suggestions are adopted, write and thank the people responsible for it. Not only will they be grateful, but your letters will move up in the pile a little faster in the future. That was one of the great frustrations of my service in Washington. When I would do something, I could be sure of hearing from virtually everyone who disagreed with that action, but I rarely heard from people who agreed with it. Hence, I would wake up and read in the newspaper that 4,000 letters had been received in response to a certain action, and all

but one of them were critical of the action. Congressmen who were opposed to the action and the media would make much ado about that and imply that the great American public was opposed to it. I would then go to make a speech at a state medical association or some other group, and people would come around and say that was really a great thing to do and we're glad you did it and so forth. In my judgment, that is one of the places the medical profession falls down. They are seen as negative and reactive, and the main reason is because no one hears from them when some action is taken that the profession may very well have suggested.

**T**hird, do your homework. If you are writing about a regulation or legislation, read it first. When I was in Washington, my office received over 90,000 pieces of mail per year. I personally read over 10,000 of them. Many of those I read came from people who clearly had not read our policy or legislative materials. Those letters were not considered seriously.

One final thought. Many of you, I am sure, believe that there is a great deal of antiphysician sentiment in Washington. There is no question that there are a lot of people in Washington who do not hold physicians in high esteem. My own view, however, is that that is not the primary reason why some of the policies and legislation have come about. Medicare is such a complex issue that if you are interested in decreasing its expenditures, the most accessible aspect is physician care. It is separate, and it requires no special expertise to understand ways to control Part B expenditures. That is clearly not true of Part A. Hence, I would not be discouraged and believe that the entire US Congress is somehow or other opposed to physicians. Although some congressmen are, most are not.

In summary, my major message is that you can have and should have a voice in the development of health policy in this country. There are plenty of opportunities, but it will require work and involvement on your part. It will also require a great deal of your thinking. You cannot settle many health policy issues in isolation; they must be considered in the perspective of our current economic and health policy situation. Each of you should become involved. You will be amazed at how much you can accomplish.



*Edward N. Brandt, Jr., MD, a 1960 graduate of the University of Oklahoma College of Medicine, is now chancellor of the University of Maryland at Baltimore.*



## Abolishment of the Insanity Defense — The Only Logical Course

JOE D. HAINES, JR., MD

**The insanity defense creates controversy every time it is invoked and may itself be indefensible in a fair-minded society.**

History is replete with famous medicolegal cases involving the issue of insanity. Invariably, the cases arose from persons of relatively low social rank attacking their superiors or leaders. It has been suggested that the issue of insanity may have been raised in these trials in order to obscure social problems which the crimes perhaps had been intended to dramatize.<sup>1</sup> This is an interesting notion, for one only need look at our most recent famous insanity trial, the John Hinckley case, to observe how the issue of insanity came to overshadow all other issues.

Following the Hinckley verdict, Congress was flooded by bills seeking to redefine and restrict the applicability of the insanity defense. Such a legislative outpouring of proposed reform mirrored the American public's indignation at seeing the man who had shot their President receive a "not guilty" verdict. How could John Hinckley be not guilty? Millions of people saw the film in which Hinckley shot the President, so of course he was guilty, regardless of whether he was insane. Yet Mr Hinckley's lawyers persuaded the jury that he was quite insane, and the government's lawyers failed to prove beyond a reasonable doubt that Hinckley was sane; therefore the law

mandated the verdict, "not guilty by reason of insanity." Still, the question remains in the minds of many: How has our judicial system's law on the insanity defense evolved into the present lamentable state?

In a recent statement on the insanity defense, the American Psychiatric Association is quick to point out that "long before there was psychiatry, there was the insanity defense."<sup>2</sup> They also correctly state that "sanity is, of course, a legal issue, not a medical one."<sup>3</sup> Even so, for years the public, juries, judges, and even physicians have been confused about the relationship between law and psychiatry in regard to the insanity defense. Perhaps a brief history will prove instructive.

The insanity defense was unknown in ancient times — neither the Greeks nor the Romans left any records of its existence. In the thirteenth century, Bracton, a medieval jurist, stated, "For a crime is not committed unless the will to harm is present." The first documented case of acquittal on the basis of an unsound mind occurred in 1505.<sup>4</sup>

A landmark case in the annals of the insanity defense was handed down in 1843. In this case, David M'Naughten was accused of the murder of Edward Drummond, the secretary of Robert Peel, prime minister of England. M'Naughten shot Drummond, mistakenly thinking him to be the prime minister. The judges handed down an advisory opinion at the request of the House of Lords which came to be known as the M'Naughten Rule. It states:

Direct correspondence to Joe D. Haines, Jr., MD, 1501 West Rogers, Skiatook, Oklahoma 74070.

(T)o establish a defense on the grounds of insanity, it must be clearly proved that, at the time of the committing of the act, the party accused was labouring under such a defect of reason, from disease of the mind, as not to know the nature and quality of the act he was doing; or if he did know it, that he did not know he was doing what was wrong.

This opinion consequently became the accepted approach to the insanity defense in Anglo-American law.

**T**he next milestone in the insanity defense was the Durham Rule (1954), which was handed down by Judge David Bazelon's Court of Appeals for the District of Columbia. The Durham Rule states that "an accused is not criminally responsible if his unlawful act was the product of mental disease or mental defect." Bazelon's decision however, was viewed by some observers as merely a refinement of the New Hampshire Rule of 1869 and 1871. Here the Supreme Court of New Hampshire handed down two decisions defining the relationship between mental disease and criminal responsibility. In *State vs Jones* (1871), the court stated:

Enough has already been said as to the use of symptoms, phases, or manifestations of mental disease as legal tests of capacity to entertain a criminal intent. They are all clearly matters of evidence to be weighed by the jury upon the question whether the act was the offspring of insanity. If it was, a criminal intent did not produce it. If it was not, a criminal intent did produce it and it was a crime.

And finally, the test for insanity that was employed in the Hinckley case, and which has been adopted by all federal jurisdictions, is the American Law Institute test (Model Penal Code). It states:

A person is not responsible for criminal conduct if at the time of such conduct as a result of mental disease or defect he lacks substantial capacity either to appreciate the criminality (wrongfulness) of his conduct or to conform his conduct to the requirements of law.

It is interesting to note that the United States Supreme Court has never ruled as to whether the availability of the insanity defense is constitutionally guaranteed to defendants. In addition, Congress has never passed any law proclaiming a particular insan-

ity defense formulation as the guideline for the federal courts. Yet there is a good possibility that at last Congress will act, largely because of the furor surrounding the Hinckley case. Alternatively, the opportunity also exists to entirely abolish the insanity defense at this juncture.

Given the framework of Anglo-American law, abolishment of the insanity defense is the only logical choice. The insanity defense is unfair both to society and to the defendant, and the cause of justice is certainly not served in its application.

The basis for this thesis is the simple assertion that *all* lawbreakers, regardless of their mental health, should be tried for their crimes in a court of law. The only exception to this rule should be the individual who is totally incapable of understanding the charges brought against him and is unable to assist in his own defense. The point here is that "insanity" is not an absolution of guilt. Whether he was insane or not, John Hinckley was guilty of the act of shooting the President. Our law is illogical — it states that Hinckley is insane; therefore, even though he was guilty of the act of shooting the President, he is not guilty in the eyes of the law.

There is a more insidious danger in this "not guilty by reason of insanity" verdict that should be considered. Historically, the constitutional rights of those committed to mental hospitals have been ignored and trampled upon. Oftentimes individuals

## **Insane or not, Hinckley was guilty of...shooting the President.**

have been denied the right to trial and instead committed to a mental hospital where they had no definite sentence and no consideration for parole.

Indeed, many hospital psychiatrists have been effectively transformed into prison wardens, and without their approval release from the hospital is impossible. The safeguards of prisoners' constitutional rights that are incorporated into our penal code simply do not exist for many mental patients. As one might expect, the potential and occurrence of abuse is high. It is time that our mental hospitals stop being prisons where the key can be literally thrown

away. In the past, defendants who were found insane usually never regained their freedom. They often spent their lifetimes incarcerated in mental hospitals.

Juries should not be forced to concern themselves with the difficulty of defining a legal term like *insanity*. They should be concerned solely with deciding guilt or innocence based on the facts presented to them, regardless of the defendant's mental status. The recent position paper by the American Psychiatric Association rightly states, "Juries thus find themselves listening to conclusory and seemingly contradictory psychiatric testimony that defendants are either 'sane' or 'insane' or that they do or do not meet the relevant legal test for insanity. This state of affairs does considerable injustice to psychiatry and, we believe, possibly to criminal defendants."<sup>5</sup>

**I**t seems rather obvious that if a defendant is "not guilty by reason of insanity," then he should be set free. After all, he is not guilty. It is illogical to incarcerate a person in a prison disguised as a mental hospital when he has been found not guilty. If, however, a defendant is judged to be guilty of a crime and also insane, then it would seem appropriate to incarcerate him in a hospital for the criminally insane.


An impartial panel of psychiatrists appointed by the court could then, after the trial, certify whether a guilty defendant was insane or not, if this were an issue. If found insane, the defendant would be sentenced to a hospital for the criminally insane, and if he were found to be sane he would be sentenced to prison. This proposal would also eliminate the present confusing practice of both sides hiring psychiatrists with conflicting viewpoints as expert witnesses.

Of course the insane defendant should receive a sentence identical to that the sane defendant receives. In addition, the same considerations for parole and other constitutional rights should be guaranteed

to the insane prisoner. If the insane prisoner regains his sanity, then he could be transferred from the mental hospital to a prison for completion of his sentence.

For those individuals found guilty and insane, special release boards could be set up to ensure that treatment supervision plans would be implemented after completion of sentence. In this way, society could be further protected from the criminally insane after their release from confinement.

The American Psychiatric Association, which favors the retention of an insanity defense, concludes that the successful use of the insanity defense is rare, "probably involving a fraction of one percent of all felony cases." In addition they state, "While philosophically important for the criminal law, the insanity defense is empirically unimportant. Making changes in the insanity defense will hardly be the panacea for reducing crime."<sup>6</sup>

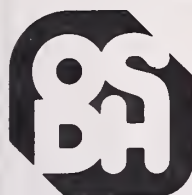
These statements illustrate a misunderstanding of what is at issue in the controversy over the insanity defense. The paradox of being found not guilty, yet possibly suffering incarceration for life, is a travesty of justice. Furthermore, few would claim that the abolishment of the insanity defense would reduce crime. The point is that the present insanity defense allows an intolerable double standard of justice based upon a jury's arbitrary and often uninformed viewpoint about a defendant's mental health. The American judicial system can be rid of this dishonor by abolishing the insanity defense. 

#### References

1. Szasz TS: *Law, Liberty, and Psychiatry* (New York, Collier Books, 1963), 128.
2. Roth L, et al: *American Psychiatric Association Statement on the Insanity Defense* (Washington, DC, American Psychiatric Association, 1982), 2.
3. *Ibid*, 7.
4. *Ibid*, 2.
5. *Ibid*, 14.
6. *Ibid*, 5.

*Joe D. Haines, Jr., MD, is a 1981 graduate of the University of Oklahoma Tulsa Medical College. His specialty is family practice, and he will be resuming a family practice residency on July 1.*





## News from the Oklahoma State Department of Health

### Newborn Hearing Screening Program

Approximately one of every 750 infants will be born with a hearing loss that is serious enough to impact on normal development of speech and language as well as ultimate academic success. Studies have established overwhelmingly that the infant's age at intervention is the most important factor in predicting the future success of a hearing-impaired infant. The earlier an infant is identified as impaired and the earlier that a program of intervention and habilitation is initiated, the better the prognosis for a normal course of development. If, however, a hearing-impaired infant is not identified prior to age 3, the handicapping effects may be permanently debilitating. Considering that (1) the national average age of identification of hearing loss is 30 to 36 months, and (2) the technology is available to conduct hearing testing at birth, the challenge is to put that technology into effect.

In 1982, following the lead of several other states, the Oklahoma Legislature enacted the Newborn Hearing Screening Program which provides for a pre- and post-natal history of every baby born in Oklahoma to review high-risk indicators of hearing loss. The Newborn Hearing Screening Questionnaire identifies infants at risk for hearing loss by means of specific criteria present in their family history, or in their antepartum, intrapartum, or postpartum course. These risk factors include familial history of childhood hearing loss, maternal infection during pregnancy, the presence of facial or cranial malformations, low birth weight,

severe asphyxia, hyperbilirubinemia, and serious illness at birth.

Infants identified as being at risk for hearing impairment (any positive response to one of the high-risk factors) have their name and identifying information placed on a high-risk register. Notification of parents that an infant is at risk for hearing loss is best made before hospital discharge by the infant's attending physician, upon review of the questionnaire. It is the attending physician who plays the key role in making this program work. Parents are provided a copy of the questionnaire to advise them of their infant's status. In addition, parents are provided with a checklist of normal developmental milestones to be used in their own observations of their baby's auditory behavior.

When an "at risk" infant is 4 months of age, parents are sent a notice reminding them to seek a hearing evaluation for their infant. A response card is provided to ascertain if the hearing of the "at risk" infant was evaluated and the results of such testing. In this way, the infant can be tracked, and upon the receipt of a normal test result, an infant is removed from the risk register. Follow-up reminders are sent to parents who did not respond to the initial request for evaluation, to ensure that all infants who remain on the risk register do eventually receive a hearing evaluation.

Upon receipt of a release-of-information form completed by a parent, information concerning infants found to have a hearing loss may be referred to follow-up special education programs to ensure these infants may receive the necessary care, habilitation, and educational opportunities in an early and appropriate continuum.

For more information about this program, contact Suzanne Lamorey, coordinator, Newborn Hearing Program, (405) 271-5601.

DISEASE	January 1986	TOTAL TO DATE		
		This Year	Last Year	5 Yr. Avg.
AMEBIASIS	1	1	1	0
CAMPYLOBACTER INFECTIONS	11	11	10	—
ENCEPHALITIS, INFECTIOUS	0	0	0	2
GIARDIA INFECTIONS	16	16	17	—
GONORRHEA (Use ODH Form 228)	1186	1186	1212	1752
HAEMOPHILUS INFLUENZAE INVASIVE DISEASE	19	19	20	—
HEPATITIS A	21	21	22	42
HEPATITIS B	5	5	5	20
HEPATITIS, NON-A NON-B	1	1	2	—
HEPATITIS UNSPECIFIED	4	4	5	18
MEASLES (RUBEOLA)	0	0	0	0
MENINGITIS, ASEPTIC	4	4	2	5
MENINGITIS, BACTERIAL (non-meningococcal, non H. Influenzae)	8	8	3	8
MENINGOCOCCAL INFECTIONS	3	3	0	4
PERTUSSIS	1	1	3	2
RABIES (Animal)	4	4	4	12
ROCKY MOUNTAIN SPOTTED FEVER	0	0	0	0
RUBELLA	0	0	0	0
SALMONELLA INFECTIONS	21	21	31	28
SHIGELLA INFECTIONS	10	10	8	23
SYPHILIS (Use ODH Form 228)	18	18	24	25
TETANUS	0	0	0	0
TUBERCULOSIS	6	6	13	28
TULAREMIA	0	0	1	0
TYPHOID FEVER	0	0	0	0

Diseases of Low Frequency	Total to Date This Year	
ACQUIRED IMMUNE DEFICIENCY SYNDROME	1	
BRUCELLOSIS	0	
LEGIONNAIRES DISEASE	1	
MALARIA	0	
REYE SYNDROME	1	
TOXIC SHOCK SYNDROME	1	
<b>RABIES</b>		
CUSTER	Horse	1
LINCOLN	Horse	1
MUSKOGEE	Horse	1
ROGERS	Skunk	1

# Always on call.



For over 20 years, C. L. Frates and Company has been recognized as "Insurance Counselors to the Oklahoma State Medical Association." Because of our long-term relationship with OSMA, we understand the priorities and time limitations of the medical profession.

We are deeply committed to meeting the special needs of doctors, staff and their families through eight OSMA-endorsed insurance plans. With OSMA owned and governed Physicians Liability Insurance Company, we offer professional liability and a comprehensive medical/hospitalization plan, PLICO HEALTH. Our other OSMA-endorsed insurance programs are disability income, business overhead expense, term life, accidental death/dismemberment, personal liability umbrella and hospital indemnity.

One of our experienced insurance specialists is available at any time, day or night, to discuss or provide a complete, no obligation, personal and business risk analysis. For more information about our OSMA-endorsed insurance plans, please give us a call.



P.O. Box 18839 • Oklahoma City, OK 73154 • 405/524-7811 • Toll Free 1-800-522-9219





**A special session** of the OSMA House of Delegates meets February 9 to discuss tort reform in Oklahoma. In the midst of heavy press coverage, the group discussed increased PLICO rates and support for the new statewide coalition for tort reform, Oklahomans Against Lawsuit Abuse. The vote to support the coalition was unanimous. Above, OSMA President Elvin M. Amen, MD, delivers the invocation. Left, Floyd F. Miller, MD, Tulsa, and Kenneth W. Whittington, MD, Bethany, confer.



## DHS requires new HCFA-1500 form for all Medicaid claims

Effective this month, Oklahoma physicians and other health care providers must begin using a new Medicaid claim form designated HCFA-1500.

The new form becomes necessary as the Oklahoma Department of Human Services (DHS) begins operation of a new billing and payment system for the processing of Medicaid claims. The automatic claims processing system is known as "Medicaid Management Information System (MMIS)."

To assist medical offices in changing over to the new claim form, the DHS conducted a series of training workshops throughout the state in March. The sessions were designed for both administrators and billing personnel.





## OKC doctor president of SNM's 4-state Southwestern Chapter

Oklahoma City radiologist Joe Carl Leonard, MD, assumed the presidency of the Southwestern Chapter of the Society of Nuclear Medicine (SNM) in March.

The SNM is a multidisciplinary organization of physicians, physicists, chemists, radiopharmacists, technologists, and others interested in the diagnostic, therapeutic, and investigational use of radiopharmaceuticals. Founded in Seattle in 1954, it is the largest scientific organization dedicated to nuclear medicine. The Southwestern Chapter includes some 872 members from Texas, Louisiana, Arkansas, and Oklahoma.

Dr Leonard is a professor in the Department of Radiological Sciences at the University of Oklahoma College of Medicine and chief of nuclear medicine at Oklahoma Children's Memorial Hospital. He is a



Joe C. Leonard, MD

staff physician at Oklahoma Memorial and Veterans Administration hospitals.

A member of the American College of Nuclear Physicians, Dr Leonard is also a Diplomate of the American Board of Radiology and the American Board of Nuclear Medicine. He was graduated from the OU College of Medicine in 1967.

### *Games next month in Stillwater*

## OSMA pitching in again to aid Oklahoma Special Olympics

Oklahoma's Special Olympics this year will be held May 14-16 at Oklahoma State University in Stillwater, and for the second consecutive year the OSMA, as a member of the Special Olympics Corporate/Association Giving Committee, is lending its support.

Last year Oklahoma physicians contributed more than \$6,000 during a campaign headed by James B. Eskridge III, MD, Oklahoma City. Dr Eskridge is serving as chairman again this year.

OSMA members are encouraged to make their tax-deductible Special Olympics contributions through the OSMA and can do so by sending their checks, made payable to the OSMA Special Olympics Fund, to OSMA, 601 Northwest Expressway, Oklahoma City, OK 73118.

## SHEALY PAIN & HEALTH REHABILITATION INSTITUTE

For assistance in managing your difficult pain and stress patients, consider **The Shealy Institute** — America's oldest and most respected comprehensive pain and stress management clinic.

Major areas of specialization include:

- Chronic Pain Syndromes
- Spinal Cord Injuries
- Migraine & Tension Headaches
- Amputations
- Head Trauma
- Stroke

CARF accredited

3525 S. National  
Springfield, Mo. 65807  
(417) 882-0850



## Trustees approve seven OSMA Life Memberships in February

At its February 8 meeting, the Oklahoma State Medical Association Board of Trustees approved seven Life Memberships.

The new Life Members are Safety R. First, MD, John W. Gaddis, MD, Robert D. Gilmore, MD, Hall Ketchum, MD, Jack W. Newport, MD, and Frank A. Wappler, MD, of Tulsa and Robert D. Shuttee, MD, of Enid.

To be eligible for a Life Membership, an OSMA member must meet one or more of the following qualifications: (1) Be retired from the active practice of medicine due to ill health or age; (2) Be engaged in the active practice of medicine for fifty years or more; (3) Be seventy years of age or older.

## Get a Grip on Overdue Accounts.



**Your Problem:** Overdue accounts. If you don't collect them, you're left with one choice: write them off.

**Your Alternative:** Tulsa Adjustment Bureau, Inc. For over 20 years, we've been helping clients in Tulsa and the surrounding area get a firm hold on overdue accounts. Our trained staff of professionals know how to get results. Results that mean money to you. And, in the event we don't collect, you won't owe us a cent. Guaranteed.

Call or drop by our office and we'll begin collecting your delinquent accounts. Let Tulsa Adjustment Bureau, Inc. show you how to get a grip on your overdue accounts today.

---

1754 Utica Square, Suite 283 Tulsa, Oklahoma 74114 (918) 749-1481  
In Oklahoma dial, 1-800-722-2703

**T U L S A**  
**A D J U S T M E N T**  
**B U R E A U**

**ELK CITY COMMUNITY HOSPITAL  
IS ON THE UPBEAT**

WE HAVE A GOOD PRACTICE  
OPPORTUNITY IN  
INTERNAL MEDICINE/CARDIOLOGY

CONTACT HOSPITAL ADMINISTRATOR  
COMMUNITY HOSPITAL  
ELK CITY, OK  
405 225-2511

**ELK CITY IS OKLAHOMA'S BEST  
KEPT SECRET**





A



B



Oklahomans Against  
Lawsuit Abuse



C



D

**Victory smiles** on the supporters of HB 1892 as strenuous lobbying efforts at the state capitol achieve their goal—getting the tort reform bill out of the House Judiciary Committee and on to the House floor. The push came on February 19 as lobbyists from across the state converged on the capitol (A). In a typical strategy session (B), Don Blair, right, executive director of Oklahomans Against Lawsuit Abuse, offers suggestions to Chris Waters, Southwestern Insurance Information Service; James H. Paddleford, attorney; and Donald L. Miller, president, Oklahoma Society of Certified Public Accountants. OSMA Auxiliary members turned out also, and among those present were (C) Frances Huneke, Virginia Ramsay, and Jo Welborn, Ada; Veronica Montero, Oklahoma City; Auxiliary President Mary Ann Deen, Ada; and Elizabeth Edge, Norman. (D) Otie Ann Carr, OSMA director of state legislation; David Bickham, OSMA executive director; and Robert W. Baker, OSMA associate director were obviously delighted with the outcome. Subsequently, on February 26, the bill won the overwhelming support of the House, and by a vote of 89 to 10 was referred to the Senate for debate.

## Report condemns vague terminology

# Most "fibrocystic conditions" not prelude to breast cancer

Most fibrocystic conditions do not represent precancerous breast disease, according to a special report released in the March *Archives of Pathology and Laboratory Medicine*, an AMA journal.

The report presents results of a consensus meeting convened by the College of American Pathologists and funded by the American Cancer Society. Meeting participants included nationally recognized pathologists, oncologists, surgeons, and gynecologists.

"This meeting was the result of a series of events that began with complaints made by women throughout the country," the report states. "They individually contacted the American Cancer Society because of frustration and consternation after being told that continuation of their health insurance was in jeopardy or that their premiums would be rated higher because of a diagnosis of 'fibrocystic disease.'" The condition affects some 50% to 80% of US women.

Among consensus conclusions: *Fibrocystic disease* is no longer an acceptable term because of its lack of specificity. If the term is used at all, or when the preferred terms *fibrocystic changes* or *fibrocystic condition* are used, the component elements should be specified.

The report then lists and assigns relative risks to more than a dozen specific diagnoses. Among conditions with no increased relative risk for invasive breast cancer: adenosis, apocrine metaplasia, macro or micro cysts, duct ectasia, fibroadenoma, fibrosis, mild hyperplasia, mastitis, periductal mastitis, and squamous metaplasia.

Among diagnoses with a slightly increased risk for invasive breast cancer of one-and-one-half to two times that of women who have had no breast biopsy: hyperplasia, moderate or florid, solid or papillary; and papilloma with fibrovascular core.

Diagnoses with a moderately increased risk, up to five times that of women who have had no breast biopsy are: atypical hyperplasia (borderline lesion), either ductal or lobular.

Commenting, the authors point out that the consensus statement is limited to "only those risk factors derived from the pathologic examination of benign breast tissue." The indications for breast biopsy were not discussed by participants, the report adds. Nothing in the report suggests that a clinical diagnosis of fibrocystic change must be followed by a biopsy to assess the risk for invasive cancer, in the absence of a usual indication for biopsy.

Moderator of the consensus meeting was Robert V. P. Hutter, MD, who chairs the cancer committee of the College of American Pathologists and is associated with Saint Barnabas Medical Center in Livingston, NJ. Participants included representatives from the American Cancer Society, National Cancer Institute, American College of Obstetricians and Gynecologists, Society of Plastic and Reconstructive Surgeons, Department of Health and Welfare of Canada, American College of Surgeons, and more than 20 university medical schools and teaching clinics and hospitals. □

The June issue  
of the JOURNAL  
closes May 1.

## PHYSICIANS AND/OR NURSE PRACTITIONERS

We are one of America's largest health care corporations. Currently we are seeking either a Physician and/or Nurse Practitioner to join the professional team at our Plasma Donor Center in Wichita Falls and other locations throughout Texas.

Responsibilities will include performing physicals in conjunction with donor screening and evaluations. We will consider Physicians who wish to work on a consulting basis. Candidates must be Texas-licensed or eligible.

We offer an excellent work environment, a highly competitive salary and liability protection. For immediate consideration please send curriculum vitae/resume to **Art Barron, Alpha Therapeutic Corp., 5555 Valley Blvd., Los Angeles, CA 90032**. Equal Opportunity Employer M/F.

 **Alpha**

**THERAPEUTIC CORPORATION**



# When you need Professional help...



*call a specialist.*

**RTS** is the professional placement specialist. With 15 years of medical experience, we have the expertise to know your employment requirements and match them with qualified medical applicants.

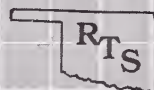
Pre-interviewing and screening saves costly expenditures of time, advertising and recruiting costs. By utilizing our professional resource pool, you receive prompt attention to your special needs.

**RTS** has the most innovative concept in permanent and temporary medical help available today, covering all areas of the medical field, including:

- PHYSICIANS    • PHYSICIAN ASSISTANTS    • RN/LPN    • LAB TECHS
- X-RAY/EKG TECHS    • EMT's    • ER COVERAGE

*Call a professional...*

OKC 405/794-9642 • TULSA 918/582-2132



**PLACEMENT SERVICE, INC.**  
HOME OF RELIEF TECH SERVICE

SERVING OKLAHOMA PHYSICIANS, CLINICS AND HOSPITALS STATEWIDE • LICENSED BY THE STATE OF OKLAHOMA



## HARD WORK SMALL MIRACLES



Dear Mr. Dr.

I'm Simon Martin.

After surgery for a brain tumor, I was paralyzed on my right side. After the hospital, my doctor recommended the Rehabilitation Institute of Oklahoma.

Now, I work my cattle just as I always had, and I walk without so much as a cane. The Institute can help you rebuild your life. I'm living testament to that.

Sincerely,

Simon Martin

**A**fter injury or illness strike and the hospital stay is over, the recovery process may not be complete. For many, the next step on the road to a more self-sufficient lifestyle is the Rehabilitation Institute of Oklahoma.

We work hard with every patient to achieve the small miracles of recovery.

Call or write today for complete information.



Rehabilitation  
Institute  
of Oklahoma

700 Northwest 7th Street  
Oklahoma City, OK 73102  
405-236-3131

## OB-GYN surgeon transmits hepatitis B to five patients

Hepatitis B infections in five Georgia patients were transmitted from the same obstetric-gynecologic surgeon and underscore the need for medical care personnel to receive vaccinations against the virus, according to a recent report.

"Investigation documented that the surgeon was hepatitis B surface antigen and hepatitis B e antigen positive," state Ludwig A. Lettau, MD, MPH, of the Centers for Disease Control in Atlanta, and colleagues. "All five patients had hepatitis B subtype matching that of the surgeon and no other identifiable risk factors for hepatitis B viral infection," they add in their report in the *Journal of the American Medical Association*.

The first two cases were reported to the Georgia department of health in 1984. Both women had had major gynecologic operations by the same surgeon three months before the onset of their illnesses. The

surgeon had practiced obstetrics-gynecology in an urban setting for more than 20 years. "He was in good health and had no dermatitis or other skin lesions on his hands," the researchers say, but add that he had been infected in 1983 and was hepatitis B surface antigen positive.

"In this outbreak, initial control measures included double-gloving and efforts to avoid inadvertent self-injury from sharp surgical instruments. Based on previous outbreaks, these recommendations, in conjunction with a requirement for informed consent from patients for surgical procedures and surveillance for further hepatitis B transmission, were considered sufficient to allow the surgeon to resume operating on patients."

Despite these precautions, six patients were finally affected. After that, a partial restriction of surgical privileges was imposed on the surgeon by local health authorities, the researchers say.

They point out that similar outbreaks transmitted by an obstetric-gynecologic surgeon have been reported in England, Minnesota, Mississippi, and Louisiana. "Full utilization of the currently available inactivated hepatitis B vaccine by health care workers could completely interrupt nosocomial hepatitis B transmission," the researchers say. "Clearly, all health care workers for whom this vaccine is recommended should receive it, not only for their personal health but also to prevent the remote but real possibility of transmission of hepatitis B infection of patients and the disastrous consequences described in this report," they conclude. □



**Veterans  
Administration**

## PHYSICIAN

Board Certified or Eligible in  
IM, Emergency Medicine, or FP  
to staff VA Outpatient Dept. in  
MUSKOGEE, OKLAHOMA

Salary \$64,000 - \$72,000  
Liberal Fringe Benefits  
An Equal Opportunity Employer

Contact: RUSSELL GLYNN, M.D.  
VA Medical Center (11A)  
Muskogee, OK 74401

(918) 683-3261 ext. 351

### FAMILY PRACTITIONERS AND GENERAL INTERNIST LOOKING FOR PRIVATE PRACTICE

There is a perfect opportunity in Shawnee, Ok.,  
30 miles east of Oklahoma City. We will guarantee  
first year income of \$60,000.00 Net.

Send all inquiries and CV to Dr. G. D. Williamson,  
1533 N. Harrison, Shawnee, Ok. 74801 or call  
405-275-6903.

**OFFICE SPACE AVAILABLE IN IDEAL LOCATION.  
EXCELLENT AREA FOR AM-PM CLINIC.**

## Report documents pattern of withdrawal from cocaine abuse

Withdrawal from cocaine abuse is markedly different from withdrawal from alcohol, barbiturate, or opiate abuse, according to a study from Yale University appearing in the *Archives of General Psychiatry*.

Frank H. Gawin, MD, and Herbert D. Kleber, MD, evaluated 30 consecutive, self-referred chronic cocaine users and found that the "crash" period after cessation of cocaine use lasts from 8 to 50 hours.

"After the crash, the second phase began with one to five days of near-normal affective functioning and normal sleep/waking cycles, with little cocaine craving," the researchers say. Then the patients were plagued by anxiety, irritability and times of intense boredom. During this "withdrawal" period, "they had difficulty perceiving anything other than cocaine as potentially pleasurable. The symptoms then continued from one to ten or more weeks before craving decreased."

A third phase, during which episodic craving for cocaine occurs, then lasts for as long as 28 weeks, the researchers note. "This exploration confirms that cocaine abusers exhibit uniform major-depressive-like symptomatology during a circumscribed period immediately following an episode of cocaine use," they say. Methylphenidate hydrochloride and lithium carbonate assist certain patients in withdrawal, and desipramine hydrochloride has been helpful with others. □

**OSMA**  
**Physician Recovery Hotline**  
**(405) 691-7318**

INTERESTED  
IN FINE OFFICE FACILITIES  
IN A THRIVING COMMUNITY?

### EDMOND MEDICAL PLAZA

Across Street From Edmond Memorial Hospital

**First Class Medical Suites  
At An Affordable Rate**

WRITE: Edmond Medical Plaza Leasing Agent  
1601 Northwest Expressway, Suite 1010, Oklahoma City, Oklahoma 73118  
Or Call Clay T. Farha: 405-524-6336

EDMOND MEDICAL PLAZA  
120 North Bryant, Edmond, Oklahoma



*New concern for endurance athletes*

## Salt levels become as critical as fluids to ultramarathoners

Two runners were hospitalized with hyponatremic encephalopathy (temporary brain dysfunction due to dilution of sodium in the blood and resulting in possible seizure) shortly after completing an ultramarathon in Chicago in 1983. Their cases, reported in the *Journal of the American Medical Association*, signal a warning for other runners who drink lots of fluids to prevent dehydration during a race.

"Hyponatremia, which has not been commonly associated with exercise, should be considered as a possible consequence of ultraendurance events," report R. Tyler Frizzell, of Vanderbilt University School of Medicine, Nashville, and colleagues. They say in these two cases the condition was caused primarily by increased intake and retention of dilute fluids (mostly water) and contributed to by excessive sodium loss in sweat.

Both men were participating in the 100 km (62.14 mi) American Medical Joggers Association ultramarathon in October 1983. One was a 24-year-old medical student and the other a 45-year-old physician. Shortly after finishing the race, both runners experienced confusion, stupor, or disorientation, and were admitted to emergency rooms. Each had consumed approximately 20 liters of fluid during the

race, including electrolyte replacement glucose, cola, and water. Serum sodium levels in both men were abnormally low.

The runners recovered satisfactorily after receiving an IV saline solution, although the younger runner had a grand mal seizure while in the emergency room and required hospitalization for five days. Both men have resumed running but have not participated in another ultramarathon.

Most sodium is lost from sweating, the researchers say, noting that during a marathon runners can lose as much as eight liters of sweat. Sodium dilution can be worsened by drinking large amounts of salt-free fluids. The researchers suggest that the onset of symptoms after the race may be attributed to gastric emptying and increased visceral blood flow, releasing even more fluid into the blood stream.

Hyponatremia is not generally recognized as a complication of exercise, the researchers observe, although its incidence may increase with the popularity of ultraendurance events. In contrast, dehydration, which can lead to heat stroke and heat exhaustion, is a well-known complication of exercise in a warm environment. □

---

# HERO

## *An Oral History of the Oklahoma Health Center*

by Robert C. Hardy

about 400 pages, more than 400 photographs, large "coffee table" size

MAIL TO:

NAME \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_

STATE \_\_\_\_\_ ZIP \_\_\_\_\_

Please send me \_\_\_\_\_ copies of HERO.

My check for \$\_\_\_\_\_ is enclosed.

\_\_\_\_\_ @ \$34.95 \$\_\_\_\_\_

Plus sales tax, mailing & handling,  
\$3.00 per copy

\_\_\_\_\_ @ \$3.00 per copy \_\_\_\_\_

Total \_\_\_\_\_

Mail to: Oklahoma Health Sciences Foundation, 314 N. Robinson,  
Suite A, Oklahoma City, Oklahoma 73102, or phone (405) 271-4778.

## DEATHS

### Francis Michael Duffy, MD 1896 - 1986

OSMA Life Member Francis M. Duffy, MD, a native of Holbrook, Iowa, died in Enid February 5, 1986. A general surgeon, Dr Duffy earned his medical degree at Creighton University, Omaha, Neb, in 1923. He was an associate professor of pathology and bacteriology at Creighton from 1925 to 1930 and served on active duty with the US Army during World War I. A Fellow of the American College of Surgeons, Dr Duffy practiced medicine in Enid for more than 40 years before his retirement.

### Minard Friedberg Jacobs, MD 1899 - 1985

Minard F. Jacobs, MD, OSMA Life Member and a native of Oklahoma City, died in his hometown on September 30, 1985. Dr Jacobs, a specialist in internal medicine and gastroenterology, earned his medi-

cal degree at the University of Michigan in 1923. He completed a fellowship in medicine at the Mayo Clinic and was on active duty with the US Armed Forces during World War I. A Fellow of the American College of Physicians, Dr Jacobs was an associate professor of medicine at the University of Oklahoma and had an active practice in Oklahoma City for more than 25 years.

### Edward LeRoy Leonard, MD 1918 - 1986

General practitioner Edward L. Leonard, MD, of Wagoner, died on February 14, 1986. A 1952 graduate of the University of Oklahoma School of Medicine, he practiced for three years in Chattahoochee, Fla, before returning to Oklahoma. Prior to entering medical school, Dr Leonard was a navigator in the US Air Force from 1941 to 1946 and attained the rank of captain. He established his medical practice in Wagoner in 1957.

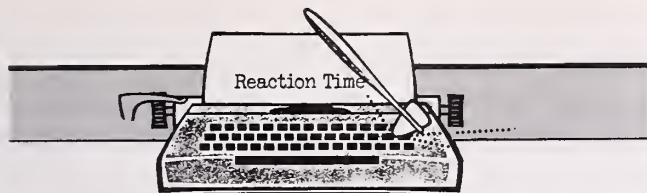
## IN MEMORIAM

### 1985

<i>E.C. Lindley, MD</i>	<i>March 1</i>	<i>Meredith M. Appleton, MD</i>	<i>September 7</i>
<i>Charles W. Freeman, MD</i>	<i>March 5</i>	<i>Robert A. Northrup, MD</i>	<i>September 8</i>
<i>Floyd L. Waters, MD</i>	<i>March 5</i>	<i>Carl H. Bailey, MD</i>	<i>September 9</i>
<i>Forest R. Brown, MD</i>	<i>March 19</i>	<i>Hugh B. Spencer, MD</i>	<i>September 13</i>
<i>William M. Leebron, MD</i>	<i>March 22</i>	<i>Bernice E. McCain, MD</i>	<i>September 14</i>
<i>Louis A. Martin, MD</i>	<i>March 22</i>	<i>Minard F. Jacobs, MD</i>	<i>September 30</i>
<i>Don D. Sullivan, MD</i>	<i>March 27</i>	<i>Robert Ray Rupp, MD</i>	<i>October 2</i>
<i>Hanna B. Karam, MD</i>	<i>March 28</i>	<i>William C. Moore, MD</i>	<i>October 24</i>
<i>John R. Cotteral, MD</i>	<i>April 30</i>	<i>Michael Wayne Durbin, MD</i>	<i>November 13</i>
<i>Ernest S. Kerekes, MD</i>	<i>June 8</i>	<i>Alan Luis Gorena, Jr., MD</i>	<i>November 19</i>
<i>L. Chester McHenry, MD</i>	<i>June 8</i>	<i>William Hampton Garnier, MD</i>	<i>November 20</i>
<i>Seigul J. Polk, MD</i>	<i>June 10</i>	<i>Jesse Ray Waltrip, MD</i>	<i>November 30</i>
<i>Murray M. Cash, MD</i>	<i>June 11</i>	<i>Charles F. Obermann, MD</i>	<i>December 30</i>
<i>Franklin Jesse Nelson, MD</i>	<i>June 13</i>		
<i>Robert L. Kendall, MD</i>	<i>June 21</i>		
<i>Marion K. Ledbetter, MD</i>	<i>July 3</i>		
<i>James Floyd Moorman, MD</i>	<i>August 8</i>		
<i>Oscar R. White, MD</i>	<i>August 14</i>		
<i>Maurice P. Capehart, MD</i>	<i>August 29</i>		

### 1986

<i>Alexander Poston, MD</i>	<i>January 3</i>
<i>Francis M. Duffy, MD</i>	<i>February 5</i>
<i>Edward L. Leonard, MD</i>	<i>February 14</i>



## OMPAC head applauds Auxiliary's efforts in support of tort reform

*To Mary Ann Deen, President, OSMA Auxiliary:* On Wednesday, February 19, 1986, I witnessed one of the finest examples of support that I have ever seen in the Oklahoma State Capitol. Your auxiliary not only brought to OMPAC an all time high membership level, but was also very instrumental in the success of our professional liability legislation passed in committee.

On behalf of the OMPAC Chairman, Larry L. Long, MD, and the entire OMPAC Board of Directors, I congratulate you and your members on a job well done!!!

Thank you for your support!

*Robert W. Baker III  
Director, OMPAC*

## OFFICE SPACE AVAILABLE

Two NEW office spaces available in SHAWNEE, OKLAHOMA. PRIME LOCATION, HIGH EXPOSURE, HIGH VOLUME AREA. Ideal for AM-PM Clinic or Doctors' Offices. 2,000 sq. ft. each. Very modern and elegant offices. Call (405) 275-6903 for more information.

Also, need 2 family practitioners for Shawnee area. Guaranteed income.

## MISCELLANEOUS ADVERTISEMENTS

Miscellaneous advertising is available at the rate of \$10 per month per vertical inch or any portion thereof (ie, 1-7 lines is \$10, 8-14 lines is \$20, etc). Rates are *not* prorated for fractions of an inch. One inch of space contains 7 lines of copy averaging 55 characters each. The first line of the ad will automatically be set in all capital letters and averages only 38 characters. Count every letter, space, and punctuation mark as a character.

Box numbers will be assigned upon request at no additional charge. When requesting a box number, the last line of the ad must read: Reply JOURNAL BOX 00, c/o OSMA. This will add 32 characters and must be included.

Ads can be set in all boldface type if requested, for an additional \$2 per month.

Typewritten copy is preferred. Otherwise, print very legibly in ink. Ads will not be accepted on the telephone. Be sure to indicate how many times the ad is to run, and for the JOURNAL's records, please include a name, address, and telephone number where you can be reached if necessary. Ads must be received by the first of the month preceding publication.

In writing your ad, remember that it will be read statewide; include complete address and/or telephone information. If discussing employment, be sure to specify whether you are seeking a position or trying to fill one.

Enclose payment with your ad and mail to: OSMA JOURNAL, 601 Northwest Expressway, Oklahoma City, OK 73118. OSMA members and state agencies will be invoiced upon request.

**PHYSICIANS NEEDED — FAMILY PRACTICE,** Orthopedist, Ob-Gyn, Internist/Oncologist, Dermatologist, Otolaryngologist and Podiatrist. 30-Physician Multispecialty Clinic/Ambulatory Surgery Center. Excellent benefits. Send CV and 3 references to Jeanne Bledsoe, Southern Plains Medical Center, 2222 Iowa, Chickasha, OK 73018, or phone 405-224-4853.

**METROPOLITAN OKLAHOMA — FOUR-MEMBER** family practice group seeking fifth. Shared call, office located adjacent to 400-bed community hospital, routine obstetrics required. Excellent financial benefits package. Call (716) 884-3700 or reply JOURNAL Box 11, c/o OSMA.

**AVAILABLE — ACTIVE SOLO GENERAL MEDICINE** practice, new equipment, and skilled staff in rural N.E. Oklahoma near Tulsa. Office next to hospital. Guaranteed first year income. Excellent recreational resources. Reply JOURNAL Box 12, c/o OSMA.

**PHYSICIANS OF VARIOUS SPECIALTIES NEEDED** for temporary and permanent salaried positions throughout Oklahoma and adjoining states. ER and radiology physicians also needed. Janis Edwards, RN, National Health Service, 3300 N.W. 23rd, Oklahoma City, OK 73107, (405) 722-0921.

**FOR SALE — LIKE NEW! TWO METAL EXAMINING-** procedure tables. One nifty Pelton Crane autoclave. Reception room chairs, some caned and some plain. One older, plain examining table. Contact 918-682-1017.

(Continued)



---

**WANTED: EQUIPMENT TO ESTABLISH FAMILY practice office: need everything — *reasonably priced*; exam tables, medical cabinets and instruments, oto/ophth., EKG audiogram, vision tester, PFT, centrifuge, autoclave incubator, CBC machine, X-ray machine, cassettes and processor. Reply JOURNAL Box WW, c/o OSMA.**

---

**AVAILABLE —** Practice Opportunity, equipment, and professional building. 159' frontage by 100' deep, on main street and highway. Building 2,050 square feet, brick over cement block. Clinic 1,200 square feet plus 850 square feet rented. Two hospitals within 15 miles, two nursing homes in community. Only fulltime physician in the community. Wide drawing area. Contact: T. P. Forrestal, DO, 711 Main Street, Comanche, OK 73529. 405/439-2318 or 405/439-6642.

---

**PEDIATRICIAN — TO JOIN INCORPORATED GROUP** of three pediatricians in East Texas, city of 80,000. Level two hospital, large office practice. Reply JOURNAL, Box 10, c/o OSMA.

---

**OFFICE SPACE FOR RENT IN ESTABLISHED** industrial clinic near St. Anthony Hospital, Oklahoma City. Lab & X-ray available. Will be able to make some referrals. Phone (405) 232-6144.

---

**FOR SALE — USED OFFICE EQUIPMENT — 3 exam tables (1) Ritter — Chairs — 2 metal filing cabinets — lights, etc. Excellent buy. For more information call owner at (405) 843-6566.**

---

**TEXAS — NORTH OF DALLAS — IMMEDIATE FULL-**time and part-time positions in hospital-affiliated family practice clinic. Offering attractive incentive for purchase of clinic as practice. Beautiful resort area has stable patient population with great growth potential. Contact: Emergency Consultants, Inc., 2240 South Airport Road, Room 32, Traverse City, MI 49684; or call 1-800-253-1795 or in Michigan 1-800-632-3496.

---

**SEEKING BOARD CERTIFIED FAMILY PRACTICE,** Pediatric, and Internal Medicine, M.D.s to provide continuity of care for a hospital-affiliated network of convenient care/family practice centers in a large Midwestern city. Salary plus profit sharing. Send resume to: Box 470300, Suite 1348, Tulsa, OK 74145 ref #1/86B.

---

**TEXAS: FULL TIME ED POSITION AVAILABLE AT 244-**bed hospital. Recreational area north of Dallas. Excellent compensation including malpractice insurance. Contact: Emergency Consultants, Inc., 2240 South Airport Road, Room 32, Traverse City, MI 49684; 1-800-253-1795 or in Michigan 1-800-632-3496.

---

**FOR SALE — 4,000-SQUARE-FOOT PHYSICIAN'S OF-**ice building, 15 years old, one story, built by Marshall Erdman, and located across the street from the city's 100-bed hospital, in N.E. Oklahoma town of 17,000 serving a population of more than 45,000. The area is in need of OB-GYN (1 in town), GP-FP (3 in town), INT. MED. (3 going on 2 in town), and GEN. SURG. (2 in town). But, we have full-time ORTHO., UROL., RAD. (CAT scan, ultrasound, nuc. med.), PATH., and 24-hr. E.R. coverage. Available also, is one day a week consultation opportunities with Tulsa-based PUL. MED., CARD., ENT, ALLER., and GI. specialists. The hospital has 4 O.R.s and a cysto room, 2 delivery rooms, newborn nursery, and a 9-bed med-surg I.C.U. Lots of good opportunities here. Reply JOURNAL Box AA, c/o OSMA.

---

**67-YEAR-OLD RADIOLOGIST WISHES TO RETIRE.** Practice covers two rural hospitals, front range, S.E. Colorado. Spectacular home on 40 acres, stable, scenic views. Hunting, fishing, golfing, and skiing at hand. Home, practice (gross collections, \$175,000, 1985) available in one package. Interested parties contact Bill Townsend, United Farm Agency. Telephone 303-676-3426.

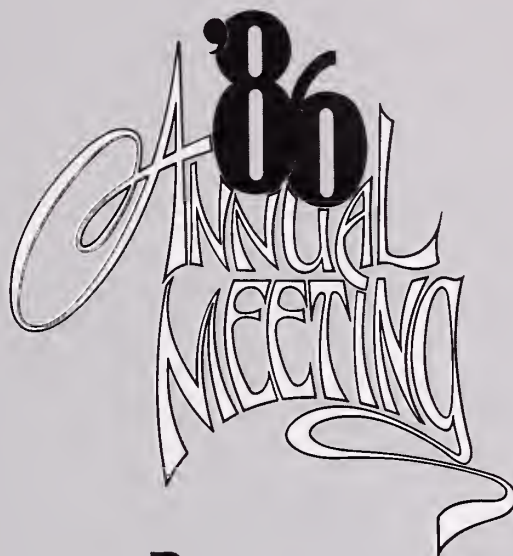
---

**ANESTHESIOLOGIST INTERESTED IN ESTABLISH-**ing a practice based on Obstetrics and Gynecology. Start up Financial Assistance available. Send CV to Medical Director, Box 205, Oklahoma City, OK 73102.

---

# Oklahoma State Medical Association

Tulsa, May 8-10



## Program

Tulsa will host the 1986 Annual Meeting of the Oklahoma State Medical Association and the Oklahoma State Medical Association Auxiliary on May 8, 9, and 10.

The OSMA Board of Trustees will meet Wednesday afternoon, May 7.

The **Radisson Excelsior Hotel** will be the site of all Auxiliary and social functions while the **Tulsa Convention Center** will house exhibits and most OSMA business and scientific meetings.

Norman L. Dunitz, MD, Tulsa, will be inaugurated as the OSMA's eighty-first president during the meeting.

Featured speakers for the business and scientific meetings will be John B. Coury, Jr., MD, president-elect of the American Medical Association; Bruce Chabner, MD, Director, Division of Cancer Treatment, National Cancer Institute, Bethesda, Maryland; and Timothy Keating, professional relations advisor for the Health Care Financing Administration.

An exciting slate of social and sporting events, a practical and timely scientific program, and the business of the OSMA House of Delegates will make Tulsa the place to be in May for the 1986 Annual Meeting of the Oklahoma State Medical Association.

### Planning Committee

Elvin M. Amen, MD, Bartlesville, OSMA president; Edward J. Tomsovic, MD, Tulsa, general chair; Frank A. Clingan, MD, Tulsa, scientific program; Lesley L. Walls, MD, Tulsa, exhibits; Steven L. Saltzman, MD, Tulsa, social program; Loren V. Miller, MD, Tulsa, golf; Simon A. Levit, MD, Tulsa, tennis; Mary Ann Deen (Gordon), Ada, OSMA Auxiliary president; Jane Ann Harper (David), Tulsa, OSMA Auxiliary program chair.

---

## 1986 Scientific Program Tulsa Convention Center Conference Hall

### Thursday, May 8

1:30 PM      General Session  
Federal Reimbursement for Physicians:  
The Present and The Future  
Timothy Keating  
Professional Relations Advisor  
Health Care Financing Administration  
Baltimore, Maryland

3:00 PM      Concurrent Sessions

### Obstetrics/Gynecology

Panel Moderator:      Steven Saltzman, MD  
Associate Professor and Chairman  
Department of Obstetrics/Gynecology  
Clinical Assistant Professor of Family Medicine  
University of Oklahoma  
Tulsa Medical College

#### Topics:

Laser Surgery in  
Gynecology . . . . . David A. Kallenberger, MD  
Clinical Assistant Professor  
Department of Obstetrics/Gynecology  
University of Oklahoma  
Tulsa Medical College

Andrology  
Laboratory Analysis  
in the Infertile  
Couple . . . . . J. Edward Wortham, PhD  
Associate Professor  
Department of Obstetrics/Gynecology  
University of Oklahoma  
Tulsa Medical College

Update in  
Obstetrical  
Ultrasound . . . . . Glenn L. Haswell, MD  
Adjunct Associate Professor  
Department of Obstetrics/Gynecology  
University of Oklahoma  
Tulsa Medical College



---

## Trauma Services

Panel Moderator: Roger A. Siemens, MD  
Clinical Associate Professor  
Department of Surgery  
University of Oklahoma  
Tulsa Medical College

### Topics:

#### Initial

Resuscitation . . . . . John C. Sacra, MD  
Medical Director  
Emergency Services  
Saint Francis Hospital  
Tulsa, Oklahoma

#### Special Problem

Areas . . . . . Roger A. Siemens, MD  
Clinical Associate Professor  
Department of Surgery  
University of Oklahoma  
Tulsa Medical College

#### How and When to

Transport . . . . . Roger A. Siemens, MD  
Clinical Associate Professor  
Department of Surgery  
University of Oklahoma  
Tulsa Medical College

#### The Newer Aspects

of Trauma . . . . . C. T. Thompson, MD  
Clinical Professor  
Department of Surgery  
University of Oklahoma  
Tulsa Medical College

## Friday, May 9

9:00 AM General Session  
Latest Developments in Diagnosis and Treatment of Cancer  
Bruce Chabner, MD  
Director  
Division of Cancer Treatment  
National Cancer Institute  
Bethesda, Maryland

---

10:30 AM      Concurrent Sessions

## Medicine

Panel Moderator:            Jack D. Powell, MD  
                                 Clinical Assistant Professor  
                                 Department of Internal Medicine  
                                 University of Oklahoma  
                                 Tulsa Medical College

### Topics:

Pneumonia . . . . . Neal A. Mask, MD  
                                 Clinical Assistant Professor  
                                 Department of Internal Medicine  
                                 University of Oklahoma  
                                 Tulsa Medical College

Cardiogenic  
Shock . . . . . Antonio C. deLeon, Jr., MD  
                                 Clinical Professor  
                                 Department of Internal Medicine  
                                 University of Oklahoma  
                                 Tulsa Medical College

Acute  
Intervention in  
Acute Myocardial  
Infarction . . . . . José R. Medina, MD  
                                 Clinical Professor  
                                 Department of Internal Medicine  
                                 University of Oklahoma  
                                 Tulsa Medical College

## Urology/Impotence

Panel Moderator:            James R. Leach, MD  
                                 Clinical Associate Professor  
                                 Department of Urology  
                                 University of Oklahoma  
                                 Tulsa Medical College

### Topics:

Basic Evaluation  
of the Impotent  
Patient . . . . . James R. Leach, MD  
                                 Clinical Associate Professor  
                                 Department of Urology  
                                 University of Oklahoma  
                                 Tulsa Medical College

---

Medications That  
May Cause

Impotence . . . . . George A. Starkweather, MD  
Endocrinologist  
Tulsa, Oklahoma

Pharmacologically

Induced Erections . . . William F. Barnes, MD  
Clinical Associate Professor  
Department of Urology  
University of Oklahoma  
Health Sciences Center

Surgical Treatment

of Impotence . . . . . James R. Leach, MD  
Clinical Associate Professor  
Department of Urology  
University of Oklahoma  
Tulsa Medical College

1:00 PM      Concurrent Sessions

**Lung Cancer**

Panel Moderator:      Fred Garfinkel, MD  
Clinical Associate Professor  
Department of Internal Medicine  
University of Oklahoma  
Tulsa Medical College

Topics:

Incidence,  
Clinical

Presentations: . . . . . Fred Garfinkel, MD  
Clinical Associate Professor  
Department of Internal Medicine  
University of Oklahoma  
Tulsa Medical College

Radiographic  
Tests and

Evaluations . . . . . José E. Trujillo, MD  
Clinical Instructor  
Department of Radiologic Sciences  
University of Oklahoma  
Tulsa Medical College



---

Therapy and  
Prognosis ..... George M. Pikler, MD  
Clinical Associate Professor  
Department of Internal Medicine  
Hematology/Oncology Division  
University of Oklahoma  
Tulsa Medical College

## Esophagitis

Panel Moderator: Robert M. Melichar, MD  
Clinical Associate Professor  
Department of Surgery  
University of Oklahoma  
Tulsa Medical College

### Topics:

Manometric Studies  
in Esophageal  
Disorders ..... William C. Orr, PhD  
Director  
Department of Clinical Physiology and  
Sleep Disorders Center  
Presbyterian Hospital  
Oklahoma City

Evaluation of the  
Patient with  
Esophagitis ..... David W. Jenkins, MD  
Clinical Associate Professor  
Department of Internal Medicine  
University of Oklahoma  
Health Sciences Center

Surgical  
Treatment of  
Reflux  
Esophagitis ..... Robert M. Melichar, MD  
Clinical Associate Professor  
Department of Surgery  
University of Oklahoma  
Tulsa Medical College

---

3:00 PM      Concurrent Sessions

## **AIDS Update**

Panel Moderator:            James P. Hutton, MD  
                                 Clinical Assistant Professor  
                                 Department of Internal Medicine  
                                 Infectious Diseases  
                                 University of Oklahoma  
                                 Tulsa Medical College

### **Topics:**

Magnitude of the  
Problem in  
Oklahoma . . . . . James P. Hutton, MD  
                                 Clinical Assistant Professor  
                                 Department of Internal Medicine  
                                 Infectious Diseases  
                                 University of Oklahoma  
                                 Tulsa Medical College

AIDS  
Problems in  
Hospitals . . . . . Jack R. Ebright, MD  
                                 Section of Infectious Diseases  
                                 Oral Roberts University  
                                 City of Faith Medical Center

Blood: Hazards  
for Recipient and  
Health Care  
Provider . . . . . James P. Hutton, MD  
                                 Clinical Assistant Professor  
                                 Department of Internal Medicine  
                                 Infectious Diseases  
                                 University of Oklahoma  
                                 Tulsa Medical College

## **Cancer of the Breast**

Panel Moderator:            Frank A. Clingan, MD  
                                 Professor and Chairman  
                                 Department of Surgery  
                                 University of Oklahoma  
                                 Tulsa Medical College

---

Topics:

Risk Factors and

Diagnosis . . . . . Sally Moot, MD  
Fellow in Breast Oncology  
Baylor University Medical Center  
Dallas, Texas

Choices of

Therapy . . . . . James B. Lockhart, MD  
Clinical Associate Professor  
Department of Surgery  
University of Oklahoma  
Tulsa Medical College

Reconstruction:

Present or Future  
or Not At All . . . . . Fred R. Martin, MD  
Clinical Assistant Professor  
Department of Surgery  
University of Oklahoma  
Tulsa Medical College

## Board of Trustees and House of Delegates

### Wednesday, May 7

1:30 PM OSMA Board of Trustees Meeting

### Thursday, May 8

9:00 AM OSMA House of Delegates Opening Session  
10:30 AM House of Delegates Reference Committees  
4:30 PM Exhibitors' Reception

### Friday, May 9

7:30 AM OSMA Past Presidents' Breakfast  
4:30 PM Exhibitors' Reception  
6:00 PM OSMA President's Reception  
7:00 PM OSMA President's Inaugural Banquet

### Saturday, May 10

12:30 AM OSMA House of Delegates Closing Session



---

## Specialty Society Meetings

Once again many specialty societies will meet in conjunction with the OSMA:

- Oklahoma Allergy Society
- Oklahoma Chapter, American College of Emergency Physicians
- Oklahoma Section, American College of Obstetricians and Gynecologists
- Oklahoma State Society of Ophthalmologists
- Oklahoma Society of Internal Medicine
- Oklahoma State Radiological Society
- Oklahoma Urological Association
- OSMA Medical Student Members
- Oklahoma Surgical Association

## OSMA Auxiliary Program Excelsior Hotel

### Thursday, May 8

- |          |  |
|----------|--|
| 9:00 AM  | OSMAA Nurses Loan Fund Committee   |
| 9:30 AM  | Tour and Brookside Shopping  |
| 10:00 AM | OSMAA Pre-Convention Board Meeting   |
| 12:30 PM | 1985-86 and 1986-87 Joint Board Luncheon<br>Theme — "Applause"                       |
| 2:00 PM  | "Starting Your Own Business"<br>Patsy Vosburgh and Gae Bachle from Ribbons on Peoria |

### Friday, May 9

- |          |   |
|----------|---|
| 7:30 AM  | Breakfast for OSMAA Past Presidents   |
| 7:30 AM  | Breakfast for County Presidents and Presidents-Elect                                |
| 8:00 AM  | Coffee Honoring Members-At-Large and RP/MSS Members                                 |
| 9:00 AM  | OSMAA House of Delegates  |
| 10:00 AM | Informal Activities and Demonstrations in the Hospitality Room<br>for Non-Delegates |
| 12:30 PM | Luncheon, Bazaar, Shopping<br>Theme — "State Fair"                                  |

### Saturday, May 10

- |         |                                     |
|---------|-------------------------------------|
| 8:00 AM | Flea Market Shopping                |
| 9:00 AM | OSMAA Post-Convention Board Meeting |
| Noon    | Exhibitors Grand Prize Drawing      |

---

## Social Events

### Thursday, May 8

11:30 AM      University of Oklahoma College of Medicine Alumni Association  
Luncheon/Board of Trustees Meeting

Members of the OU College of Medicine Alumni Association are invited to attend this luncheon meeting of the association's Board of Trustees. Election of new officers will be the main business of the day and the program also will include a yet-to-be-announced speaker.

Space is limited so OU alums wishing to attend should make reservations soon by calling the OU College of Medicine Alumni Association office, (405) 271-2353.

6:00 PM      University of Oklahoma College of Medicine Alumni Dinner

Break out the white sport coat with the pink carnation, polish up the saddle shoes, and iron that poodle skirt for an evening of "High School Hijinks," theme of this year's OU College of Medicine Alumni Association Dinner-Dance.

Before the dancing begins, you will be entertained by one of Oklahoma's most popular speakers, Abe Lemons, basketball coach at Oklahoma City University.

The Alumni Association also will present its Private Practice Physician of the Year Award, Academic Physician of the Year Award, and Amicus Medicinæ Award during the evening's festivities.

The reception begins at 6:00 PM and dinner will be served at 7:00 PM.

Tickets for the evening are \$30.00 per person.

6:00 PM      OSMA Auxiliary Auction

Be sure to come early to the OU College of Medicine Alumni Reception to participate in the OSMA Auxiliary Auction.

The Auxiliary promises some very special items will be available to the highest bidder. All proceeds will go to the American Medical Association Education and Research Foundation (AMA-ERF).

The OSMA Auxiliary is grateful to the University of Oklahoma College of Medicine Alumni Association for allowing the auction to take place during the reception preceding their annual dinner-dance.

### Friday, May 9

6:00 PM      OSMA President's Inaugural Reception and Banquet

You are cordially invited to attend the inauguration of Norman L. Dunitz, MD, as the eighty-first President of the Oklahoma State Medical Association.

A formal cocktail reception will begin at 6:00 PM. Dinner will be served at 7:00 PM.

The I. J. Ganem Band, Tulsa's number one nightclub attraction, will entertain.

Tickets for the OSMA President's Inaugural Banquet are \$40.00 per person.

---

## Sports

Once again Oklahoma physicians will engage in friendly competition on the golf course or tennis court during the OSMA Annual Meeting.

Sporting events will take place on Thursday, May 8.

Tulsa's Meadowbrook Country Club will host the OSMA Golf Tournament. Entry fee is \$10.00. Green fees and carts are priced at \$35.00. Tee time is 1:00 PM.

The OSMA Tennis Tournament will be played at the Philcrest Hills Tennis Club. Players may play both singles and doubles for the \$20.00 entry fee.

## Exhibits

The OSMA always is grateful for the support it receives every year from exhibitors.

This year physicians will have a special reason to visit the exhibit area. Drawings for prizes will be held during the Exhibitors' Reception on Thursday, May 8, and Friday, May 9.

The drawing on Saturday, May 10, is extra special — a four-day, three-night vacation for two to Florida's Disneyworld with transportation provided by AMERICAN AIRLINES and accommodations courtesy of the luxurious VISTANA RESORT, Kissimmee, Florida. The grand prize vacation was arranged by PRIME TIME TRAVEL, Oklahoma City, Edmond, and Guthrie.

So visit the OSMA exhibits and leave a winner!!

Prodata  
MicroAge Computer Store  
US Army Medical Department  
September Financial Services  
C. L. Frates and Co., Inc.  
Ciba  
Glaxo, Inc.  
Saint John Medical Center Alcohol &  
Chemical Dependency Program  
Navy Recruiting  
Stillwater National Bank & Trust Co.  
Southern Medical Association  
Encyclopaedia Britannica  
Shadow Mountain Institute  
Mead Johnson Nutritional Division  
Regional Medical Laboratory  
Electronic Dictation Systems  
Blue Cross/Blue Shield  
AT&T  
South Community Hospital  
Roerig  
The Upjohn Company

Saint Francis Hospital, Inc.,  
Chemical Dependency Program  
Engler Photo  
Siggi Grimm Motors, Inc.  
Bolen Imports  
Oklahoma Lung Function Laboratory,  
Incorporated  
Schering Labs  
Oklahoma Military Department  
Computer Masters  
MONY Financial Services  
Oklahoma Teaching Hospitals  
Mr. E.'s Puppets, Inc.  
AmeriSource  
Matrix Computer Consultants  
Rehabilitation Institute of Oklahoma  
Image of Oklahoma  
McDonnell Douglas Physician Systems  
Company  
HSA Meadowlake Hospital  
Geigy Pharmaceuticals



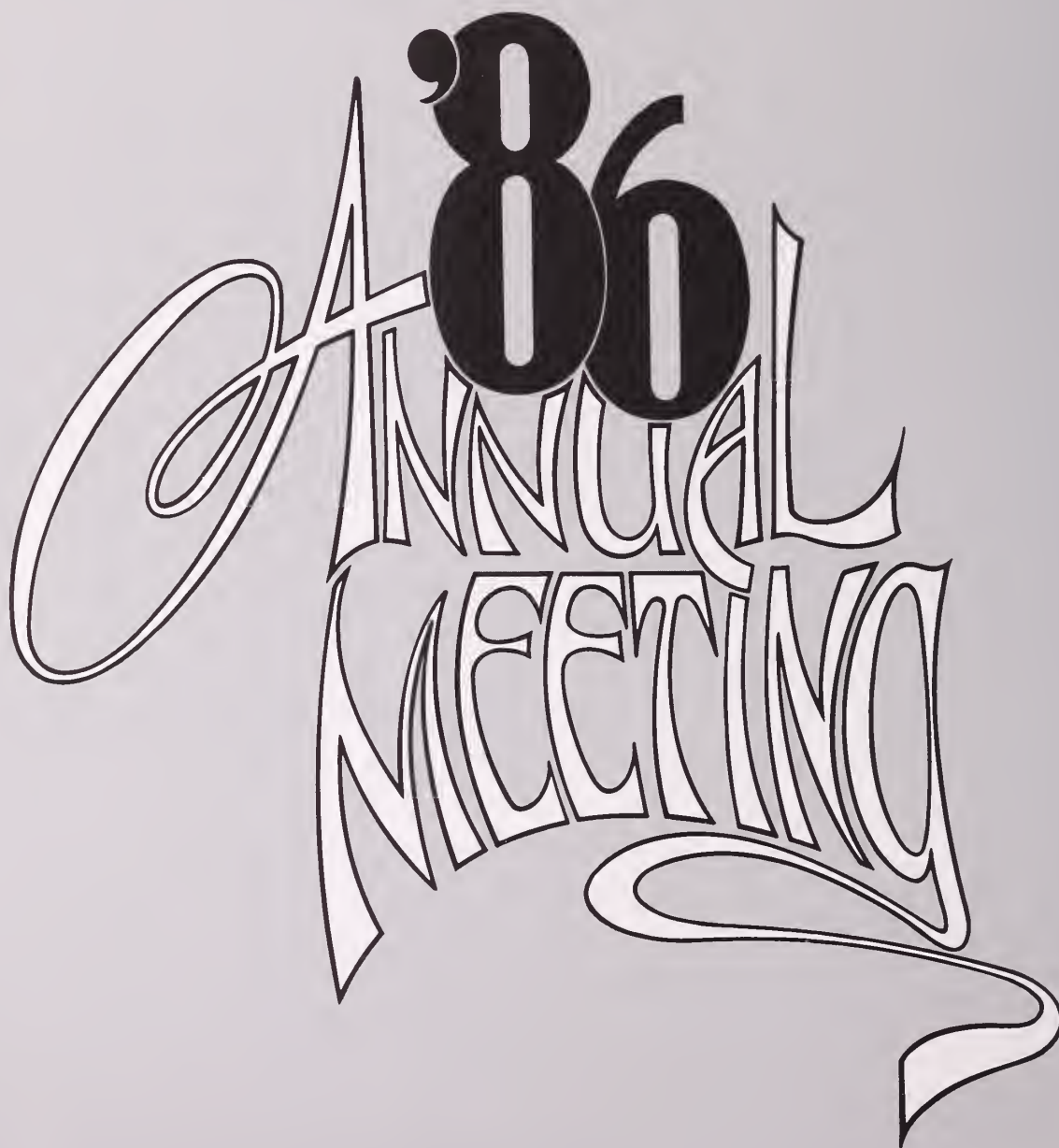
---

## Reservations and Ticket Orders

Physicians requiring hotel accommodations may make reservations by calling Tulsa's Radisson Excelsior Hotel, (918) 587-8000. Room rates for the OSMA Annual Meeting are \$65 for single or double.

Ticket order forms for the meeting's social functions and sporting events were included in the OSMA Annual Meeting registration packet mailed to all physicians.

To obtain another registration packet or for additional information, please call the OSMA, (405) 843-9571 or (800) 522-9452.



# NOTICE

## TO ALL PLICO-INSURED PHYSICIANS

The 1986 PLICO professional liability insurance policy you received contains a special endorsement or requirement making attendance at an OSMA/PLICO-sponsored Loss Prevention Seminar **mandatory** at least once in every three years. If a physician has never attended a seminar, he or she must attend one during 1986. If a physician has not attended a program since 1983, they must attend this year, also. Any physician needing to attend in 1986, and failing to do so, will not be eligible for renewal of their insurance for calendar year 1987.

### **SEMINAR ATTENDANCE MANDATORY**

#### **1986 Seminar Schedule\***

---

May 10 (OSMA Annual Meeting)	Saturday 8-11 a.m.	Tulsa
May 24	Saturday 2-5 p.m.	Oklahoma City
June 28	Saturday 2-5 p.m.	Woodward
September 10	Wednesday 6-9 p.m.	Lawton
September 17	Wednesday 6-9 p.m.	Muskogee
September 24	Wednesday 6-9 p.m.	McAlester
October 8	Wednesday 6-9 p.m.	Enid
October 15	Wednesday 6-9 p.m.	Oklahoma City
October 16	Thursday 6-9 p.m.	Tulsa

\*All PLICO insureds will receive detailed registration information for each of these seminars by direct mail.

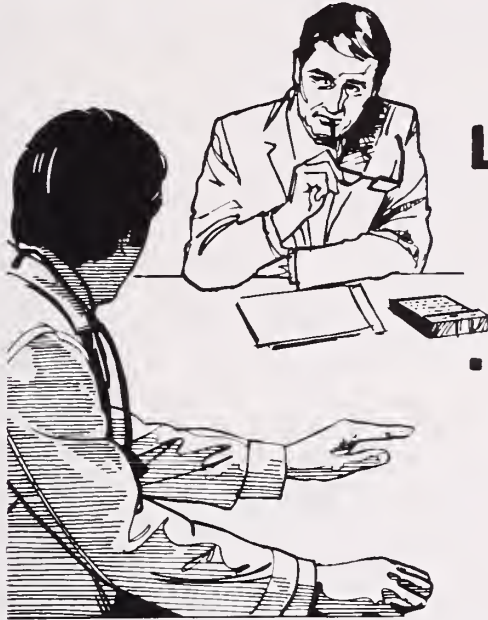
# Protection that's painless, stat.

Physicians Liability Insurance Company is offering a comprehensive medical/hospitalization plan, PLICO HEALTH. This cost-conscious health program can be easily established by physicians currently insured through doctor-owned PLICO. Designed by doctors, PLICO HEALTH offers the only rapid claim recovery plan created especially to meet the needs of physicians, staff and their families. At your convenience, one of our experienced insurance specialists will gladly provide you with details. For more information about our extensive, new dental plan, please give us a call.



**The Physicians Liability Insurance Company**  
P.O. Box 18171 • Oklahoma City, OK 73154 • 405/524-0801  
1-800/522-9219





## Let's talk about your commitment ... and ours.

***You have made  
a commitment  
we understand.***

Your personal commitment to provide the best possible medical care is your foundation for those you serve.

The long years of preparation, education, working hours, and attentiveness, are behind . . . and ahead of you.

You are at home with medical decisions and thinking clearly during critical times. You deserve to be served by folks who make the same professional commitments in their field as you in your own.

Your own financial planning is now more important than ever. You know that government regulation, insurance costs, insurance payment controls, and the general expenses related to operating your practice changes everyday.

Today, a sound financial plan, backed by a financial institution with a solid commitment to the medical industry, positions you to accomplish your goals.

Whether you are starting your practice, expanding it, buying equipment, a home, or any other financial consideration, our commitment is to present you with a package of financial alternatives you will be pleased with.

Your commitment is important to us. Your financial needs are important as well. We are anxious to discuss your needs now.

Call anytime. We are committed to serve Oklahoma Medical Professionals.

*Stillwater National Bank business and real estate loans:*

**SIXTH & MAIN, STILLWATER, OK 74074** .....(405) 372-2230  
**1616 E. 19TH, SUITE 203, EDMOND, OK 73034** .....(405) 340-1810  
**ELMCREST PARK OFFICE, 2700 E. 51st, SUITE 402, TULSA, OK 74105** (918) 742-8076

(405) 372-2230



**STILLWATER NATIONAL BANK AND TRUST COMPANY**

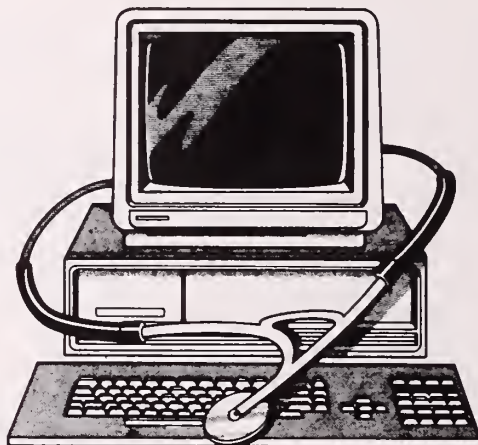
MEMBER F.D.I.C.

SIXTH AND MAIN • STILLWATER, OKLAHOMA

# MANAGE YOUR OFFICE MORE EFFECTIVELY WITH THE MPM 1000 SYSTEM AVAILABLE THROUGH SOUTHERN MEDICAL ASSOCIATIONS PHYSICIANS' PURCHASING PROGRAM

Manage your office more effectively with the MPM 1000 System available through the Physicians' Purchasing Program.

Managing your office shouldn't be hard; however, with the current insurance requirements and



the impending Medicare changes looming on the horizon, it will get more difficult. You should call Curtis 1000 Information Systems or Southern Medical Association to find out how the MPM 1000 can help make your practice run more effectively.

## AVAILABLE ON IBM A/T

### MPM 1000 Simplifies Your Paperwork

You will be able to reduce the mountains of paperwork by using your MPM 1000 system to process all your insurance, complete your billing plus instantaneously sort and file necessary information.

### MPM 1000 Speeds Up Your Cash Flow

The MPM 1000 system will increase your daily bank deposits by processing all your insurance and patients' receivables quickly.

### MPM 1000 Improves Your Practice Management

With the MPM 1000 system you can easily and intelligently manage your practice with computer generated reports. Trends and problems are easily identified so you can take corrective action before they become serious.

### MPM 1000 Is A One Source Solution

The MPM 1000 is a one source solution. With your system you receive all hardware (IBM or Texas Instruments), software, complete five day training program and responsive after sale support.

### IBM PC/AT At Discount

Best of all, these systems are available through SMA Services, Inc., Physicians' Purchasing Program with substantial discounts on IBM and Texas Instrument equipment.

**FOR MORE INFORMATION**, please fill out the coupon below and mail it to Southern Medical Association, or for faster service call Southern Medical at (205) 945-1840 or Curtis 1000 Information Systems at 800-241-4780.

☐ **YES!** I would like more information on MPM 1000

My interests are: ☐ Immediate ☐ Long term ☐ Please contact me for a survey  
I am a member of SMA ☐

Name (Please Print)

Address

City

State

Zip

( )

Specialty

Office Phone

Mail to: CURTIS 1000 INFORMATION SYSTEMS  
2296 Henderson Mill Road  
Suite 402  
Atlanta, Georgia 30345



# Motrin<sup>®</sup> 800 TABLETS mg ibuprofen



**Extra strength  
Convenience  
Economy**

**Upjohn**



A Century  
of Caring  
1886-1986



Before prescribing, see complete prescribing information in SK&F CO. literature or PDR. The following is a brief summary.

#### \* WARNING

This drug is not indicated for initial therapy of edema or hypertension. Edema or hypertension requires therapy titrated to the individual. If this combination represents the dosage so determined, its use may be more convenient in patient management. Treatment of hypertension and edema is not static, but must be reevaluated as conditions in each patient warrant.

**Contraindications:** Concomitant use with other potassium-sparing agents such as spironolactone or amiloride. Further use in anuria, progressive renal or hepatic dysfunction, hyperkalemia. Pre-existing elevated serum potassium. Hypersensitivity to either component or other sulfonamide-derived drugs.

**Warnings:** Do not use potassium supplements, dietary or otherwise, unless hypokalemia develops or dietary intake of potassium is markedly impaired. If supplementary potassium is needed, potassium tablets should not be used. Hyperkalemia can occur, and has been associated with cardiac irregularities. It is more likely in the severely ill, with urine volume less than one liter/day, the elderly and diabetics with suspected or confirmed renal insufficiency. Periodically, serum  $K^+$  levels should be determined. If hyperkalemia develops, substitute a thiazide alone, restrict  $K^+$  intake. Associated widened QRS complex or arrhythmia requires prompt additional therapy. Thiazides cross the placental barrier and appear in cord blood. Use in pregnancy requires weighing anticipated benefits against possible hazards, including fetal or neonatal jaundice, thrombocytopenia, other adverse reactions seen in adults. Thiazides appear and triamterene may appear in breast milk. If their use is essential, the patient should stop nursing. Adequate information on use in children is not available. Sensitivity reactions may occur in patients with or without a history of allergy or bronchial asthma. Possible exacerbation or activation of systemic lupus erythematosus has been reported with thiazide diuretics.

**Precautions:** The bioavailability of the hydrochlorothiazide component of 'Dyazide' is about 50% of the bioavailability of the single entity. Theoretically, a patient transferred from the single entities of Dyrenium (triamterene, SK&F CO.) and hydrochlorothiazide may show an increase in blood pressure or fluid retention. Similarly, it is also possible that the lesser hydrochlorothiazide bioavailability could lead to increased serum potassium levels. However, extensive clinical experience with 'Dyazide' suggests that these conditions have not been commonly observed in clinical practice. Do periodic serum electrolyte determinations (particularly important in patients vomiting excessively or receiving parenteral fluids, and during concurrent use with amphotericin B or corticosteroids or corticotropin (ACTH)). Periodic BUN and serum creatinine determinations should be made, especially in the elderly, diabetics or those with suspected or confirmed renal insufficiency. Cumulative effects of the drug may develop in patients with impaired renal function. Thiazides should be used with caution in patients with impaired hepatic function. They can precipitate coma in patients with severe liver disease. Observe regularly for possible blood dyscrasias, liver damage, other idiosyncratic reactions. Blood dyscrasias have been reported in patients receiving triamterene, and leukopenia, thrombocytopenia, agranulocytosis, and aplastic and hemolytic anemia have been reported with thiazides. Thiazides may cause manifestation of latent diabetes mellitus. The effects of oral anticoagulants may be decreased when used concurrently with hydrochlorothiazide; dosage adjustments may be necessary. Clinically insignificant reductions in arterial responsiveness to norepinephrine have been reported. Thiazides have also been shown to increase the paralyzing effect of nondepolarizing muscle relaxants such as tubocurarine. Triamterene is a weak folic acid antagonist. Do periodic blood studies in cirrhotics with splenomegaly. Antihypertensive effects may be enhanced in post-sympathectomy patients. Use cautiously in surgical patients. Triamterene has been found in renal stones in association with the other usual calculus components. Therefore, 'Dyazide' should be used with caution in patients with histories of stone formation. A few occurrences of acute renal failure have been reported in patients on 'Dyazide' when treated with indomethacin. Therefore, caution is advised in administering nonsteroidal anti-inflammatory agents with 'Dyazide'. The following may occur: transient elevated BUN or creatinine or both, hyperglycemia and glycosuria (diabetic insulin requirements may be altered), hyperuricemia and gout, digitalis intoxication (in hypokalemia), decreasing alkali reserve with possible metabolic acidosis. 'Dyazide' interferes with fluorescent measurement of quinidine. Hypokalemia is uncommon with 'Dyazide', but should it develop, corrective measures should be taken such as potassium supplementation or increased dietary intake of potassium-rich foods. Corrective measures should be instituted cautiously and serum potassium levels determined. Discontinue corrective measures and 'Dyazide' should laboratory values reveal elevated serum potassium. Chloride deficit may occur as well as dilutional hyponatremia. Concurrent use with chlorpropamide may increase the risk of severe hyponatremia. Serum PBI levels may decrease without signs of thyroid disturbance. Calcium excretion is decreased by thiazides. 'Dyazide' should be withdrawn before conducting tests for parathyroid function.

Thiazides may add to or potentiate the action of other antihypertensive drugs.

Diuretics reduce renal clearance of lithium and increase the risk of lithium toxicity.

**Adverse Reactions:** Muscle cramps, weakness, dizziness, headache, dry mouth; anaphylaxis, rash, urticaria, photosensitivity, purpura, other dermatological conditions; nausea and vomiting, diarrhea, constipation, other gastrointestinal disturbances; postural hypotension (may be aggravated by alcohol, barbiturates, or narcotics). Necrotizing vasculitis, paresthesias, icterus, pancreatitis, xanthopsia and respiratory distress including pneumonitis and pulmonary edema, transient blurred vision, sialadenitis, and vertigo have occurred with thiazides alone. Triamterene has been found in renal stones in association with other usual calculus components. Rare incidents of acute interstitial nephritis have been reported. Impotence has been reported in a few patients on 'Dyazide', although a causal relationship has not been established.

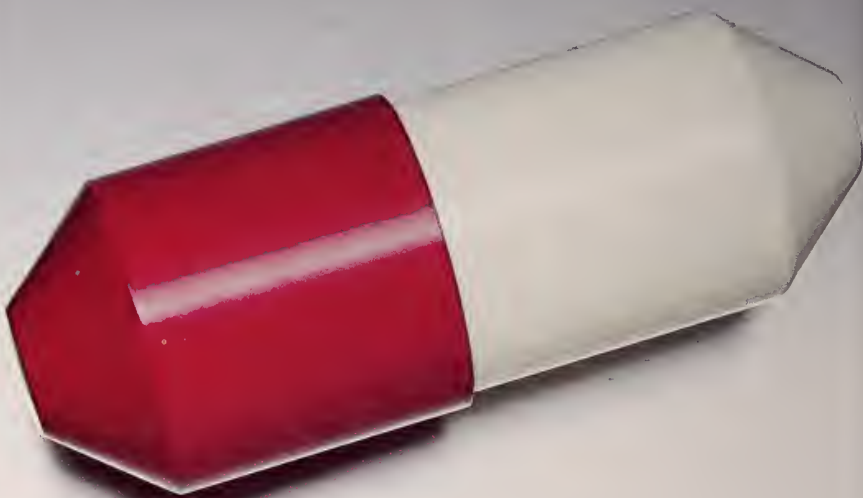
**Supplied:** 'Dyazide' is supplied as a red and white capsule, in bottles of 1000 capsules; Single Unit Packages (unit-dose) of 100 (intended for institutional use only); in Patient-Pak™ unit-of-use bottles of 100.

BRS-DZ.L39

# In Hypertension\*... When You Need to Conserve $K^+$

## Remember the Unique Red and White Capsule: Your Assurance of SK&F Quality

Serum  $K^+$  and BUN should be checked periodically (see Warnings and Precautions)



### Potassium-Sparing

## DYAZIDE®

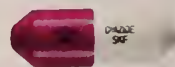
25 mg Hydrochlorothiazide/50 mg Triamterene/SKF

### Over 19 Years of Confidence

a product of  
**SK&F CO.**

Carolina, P.R. 00630

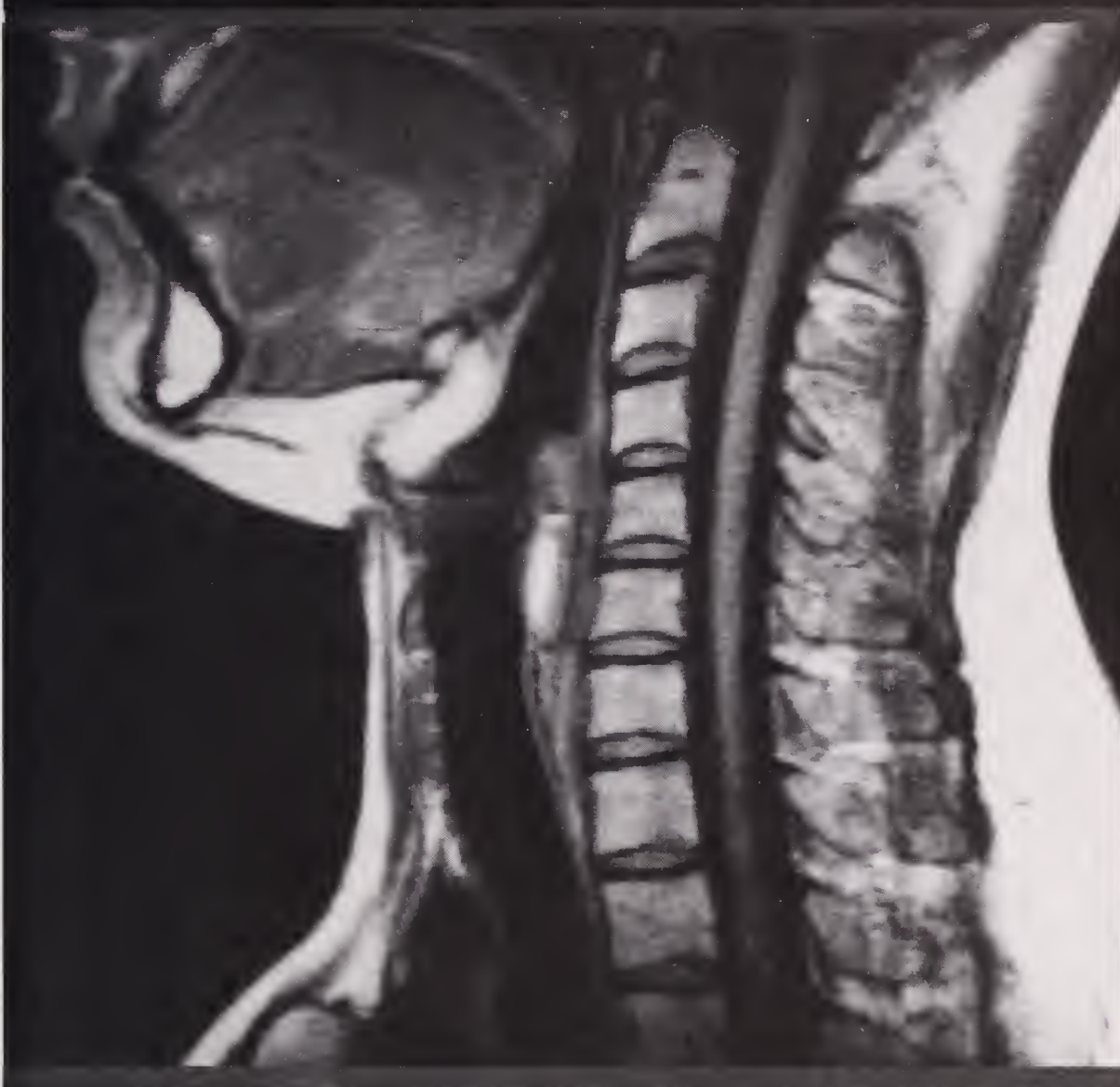
The unique  
red and white  
Dyazide® capsule:  
Your assurance of  
SK&F quality.





# TULSA MAGNETIC IMAGING

Convenient Outpatient Setting  
Unsurpassed Quality Images  
Competitive Charges  
MRI-experienced Radiologists



**Tulsa Magnetic Imaging's  
.5 Tesla Superconductive  
Magnet offers:**

- *Greater Diagnostic Ability*
- *Multiple Views of  
Anatomical Structures*
- *Image Quality  
Far Superior to CT*

For further information  
or consultation, call  
**582-3608.**

Tulsa Magnetic Imaging  
1430 South Utica Avenue  
Tulsa, Oklahoma 74101





Willow View Hospital is the only private, non-profit hospital in Oklahoma dedicated solely to the treatment of psychiatric illnesses of all types, among all ages.

- 24 Hour Emergency Admissions
- 93 Inpatient Beds
- Outpatient Services
- Designated by the Department of Mental Health as an Examination and Detention Facility for Detention Patients
- Child/Adolescent Programs
- Adult Program
- Senior Adult Program
- Substance Abuse Program

Accredited by JCAH  
as a Child/Adolescent and  
Adult Psychiatric Hospital

Jay T. Shurley, M.D.  
Medical Director

#### MEDICAL STAFF

John C. Andrus, M.D.  
Janita M. Ardis, M.D.  
Nolen Armstrong, M.D.  
Hugh M. Conner, Jr., M.D.  
James A. Cox, M.D.  
Phillip E. Green, M.D.  
A. A. Hellams, M.D.  
Wolfgang K. Huber, M.D.  
R. Murali Krishna, M.D.  
Harald Krueger, M.D.  
Siavash Nael, M.D.  
Robert J. Outlaw, M.D.  
Larry M. Prater, M.D.  
Moorman Prosser, M.D.  
Joe G. Savage, M.D.  
William H. Scimeca, M.D.  
Jay T. Shurley, M.D.  
Harold G. Sleeper, M.D.  
John R. Smith, M.D.  
Bal G. Vad, M.D.  
Sally Varghese, M.D.  
Shreekumar S. Vinekar, M.D.  
Fred W. Weber, M.D.



# WILLOW VIEW HOSPITAL

2601 North Spencer Road 405/427-2441  
P.O. Box 11137  
Oklahoma City, Oklahoma 73136

For information or referral, contact the office  
of the administrator.



**OKLAHOMA CARDIOVASCULAR AND THORACIC SURGERY ASSOCIATES  
THE CARDIAC SURGEONS OF OKLAHOMA CITY, INC.**

**PROFESSIONAL STAFF**

William D. Hawley, MD  
James M. Hartsuck, MD

R. Darryl Fisher, MD  
Marvin D. Peyton, MD  
Scott K. Lucas, MD

Diplomates of  
American Board of Surgery  
American Board of Thoracic and  
Cardiovascular Surgery

Specializing in  
Cardiac, Vascular  
and Thoracic Surgery

Office Hours 8:30 a.m. to 5:00 p.m.  
Monday through Friday  
With 24 Hour Consultation and Referral

**1-800-522-6755**

**(405) 946-0900**

**OFFICES**

3400 N.W. EXPRESSWAY, SUITE 520  
4200 WEST MEMORIAL RD., SUITE 805  
1044 S.W. 44TH, SUITE 520  
1211 NORTH SHARTEL, SUITE 706

OKC, OK 73112  
OKC, OK 73120  
OKC, OK 73109  
OKC, OK 73103



## The Total Sports Medicine Program

Professional, amateur and recreational athletes require diagnosis, treatment, surgery and rehabilitation for their active bodies.

At Oklahoma Center For Athletes, we strive for the prevention of sports injuries through proper medical management. But when those injuries do occur, the athlete deserves the finest in medical care, whether it be from an orthopedic surgeon, internist, certified sports trainer, physical therapist or exercise physiologist. A program of continued prescription physical conditioning returns the athlete to his or her peak performance level.

## OKLAHOMA CENTER FOR ATHLETES

Presbyterian Professional Building  
711 Stanton L. Young Blvd., Suite 308  
Oklahoma City, Oklahoma 73104  
(405) 271-8177



Specializing in the diagnosis  
and treatment of allergic diseases  
in adults and children.

MAILING ADDRESS: P.O. Box 26827, Oklahoma City, OK 73126

### MAIN OFFICE

750 Northeast 13th Street  
Near the Oklahoma Health Center  
(2 Blocks East of Lincoln Blvd.)  
Oklahoma City, Oklahoma  
(405) 235-0040

### N.W. OKLAHOMA CITY OFFICE

Mercy Doctors Tower  
4200 W. Memorial Rd., Rm. 112  
Oklahoma City, Oklahoma  
(405) 235-0040

### NORMAN OFFICE

900 North Porter, Suite 600  
Norman, Oklahoma  
(405) 235-0040

George L. Winn, MD†  
Robert S. Ellis, MD†\*  
Lyle W. Burroughs, MD†°  
Charles D. Haunschild, MD†°  
James H. Wells, MD†\*  
John R. Bozalis, MD†\*  
James D. Lakin, PhD, MD†\*  
John S. Irons, MD†°  
Warren V. Filley, MD†\*

Senior Consultants:  
George S. Bozalis, MD  
Vernon D. Cushing, MD†\*

† Diplomate American Board of Allergy and Immunology  
\* Diplomate American Board of Internal Medicine  
° Diplomate American Board of Pediatrics

Administrator:  
G. Keith Montgomery, MHA

Research Director:  
Richard A. Strecker, DrPh

# Orthopedic & Arthritis Center

McBRIDE CLINIC, Inc.

1111 North Dewey / Oklahoma City, Oklahoma / 232-0341

## DEPARTMENT OF ORTHOPEDICS

- \*Marvin K. Margo, MD, FACS
- \*James P. Bell, MD, FACS
- \*Stephen Tkach, MD, FACS
- \*Joseph F. Messenbaugh III, MD, FACS
- \*J. Patrick Evans, MD, FACS
- \*Edwin E. Rice, MD, FACS
- \*Warren G. Low, MD
- \*Thomas C. Howard, III, MD
- David H. Holden, MD

## DEPARTMENT OF ARTHRITIS

- John A. Blaschke, MD
- Mary L. Duffy Honick, MD
- \*Richard J. Hess, MD, FACP
- \*Jon W. Blaschke, MD
- \*R. Eugene Arthur, MD

## DEPARTMENT OF OCCUPATIONAL and INDUSTRIAL MEDICINE

Jack W. Parrish, MD

\*Specialty Board Diplomate

## MANAGEMENT SERVICES

James A. Hyde, Administrator

## SOUTHERN PLAINS MEDICAL CENTER INC. and Ambulatory Surgery Facility



### FAMILY PRACTICE

J. W. McDaniel, MD  
J. O. Wood, Jr., MD  
Stuart J. Meyer, MD

### INTERNAL MEDICINE

W. S. Harrison, MD  
D. L. Stehr, MD  
R. S. Davis, MD  
Don R. Hess, MD  
Vernon A. Vix, MD  
Randall L. Jenkins, MD

### CARDIOLOGY

J. T. Bledsoe, MD

### GASTROENTEROLOGY

C. K. Su, MD

### PEDIATRICS

R. E. Herndon, MD  
E. R. Orr, MD  
J. E. Freed, MD  
M. P. Escobar, MD  
D. F. Haslam, PhD, MD

### OBSTETRICS AND GYNECOLOGY

Nancy W. Dever, MD  
Alan J. Weedn, MD

### NEUROLOGY

Andrew Gin, MD

### GENERAL AND VASCULAR SURGERY

Linda M. Johnson, MD  
Virginia Harr, MD  
Myra Campbell, PA

### THORACIC AND VASCULAR SURGERY

Paul B. Loh, MD

### OPHTHALMOLOGY

John R. Gearhart, MD

### UROLOGY

K. T. Varma, MD  
John P. Ross, MD

### ORTHOPEDIC SURGERY

W. T. Morris, MD  
Keith W. Riggins, MD  
W. M. Ohl, PA

### GENERAL SURGERY AND INDUSTRIAL MEDICINE

C. R. Gibson, MD

### ANESTHESIOLOGY

T. Gowlikar, MD  
Gideon Lau, MD  
M. M. Vaidya, MD

### PHYSICAL MEDICINE AND REHABILITATION

Kurnad Vaidya, MD

### RADIOLOGY (Consulting)

Medical Radiology, Inc.

### CLINICAL PSYCHOLOGY

James M. Ross, PhD

### SPEECH PATHOLOGY

Colette Ellis, MEd, CCC

### ALLERGY

W. S. Harrison, MD  
R. E. Herndon, MD

### ADMINISTRATION

James W. Loy

▲ Accredited — Accreditation Association for Ambulatory Health Care, Inc.

### MAIN CLINIC

2222 IOWA, CHICKASHA, OK 224-4853

### TIMBER CREEK OFFICE

ROUTE 3, BOX 124M, TUTTLE, OK 73089





## GLASS-NELSON CLINIC

### INDUSTRIAL MEDICINE

GLEN L. BERKENBILE, MD  
GEORGE R. KRIETMEYER, MD  
DONALD W. BOBEK, MD

### PRE-EMPLOYMENT

BOB HOWLAND, PA

### PEDIATRICS

HUGH C. GRAHAM, JR., MD  
JOEL K. GIST, MD  
WILLIAM P. SIMMONS, MD

### RADIOLOGY

WILLIAM K. HICKS, MD

### GENERAL SURGERY

ROBERT S. PERRYMAN, MD  
FRANKLIN S. NELSON, MD

### INTERNAL MEDICINE & EXECUTIVE PHYSICALS

WILLIAM F. EWING, MD  
BOYD O. WHITLOCK, MD  
RICHARD H. REID, MD  
R. A. SEARCY, MD  
PHILIP W. PERRYMAN, JR., MD

### ADMINISTRATION

FRED R. STAFFORD  
GALE CLARK

1923 East 21st Street Box 52218 • TULSA, OKLAHOMA 74152 • PHONE (918) 742-3341



## THE ARTHRITIS CLINIC

Lloyd G. McArthur, PhD, MD

Winfred L. Medcalf, MD  
Robert C. Troop, PhD, MD

207 C Street NW

Ardmore, Ok. 73401

Phone (405) 223-5180

# MEDICAL ARTS CLINIC OF ARDMORE, INC.

921 Fourteenth Avenue Northwest  
Ardmore, Oklahoma 73401

## General Surgery

THORNTON KELL, MD, FACS  
\*TOM SPARKS, MD, FACS  
\*WILFRED S. GAUTHIER, MD, FACS

## Obstetrics and Gynecology

†MICHAEL B. BEASON, MD

## Radiology (Consultants)

\*MICHAEL W. BROWN, MD  
\*JAMES A. CHAPMAN, MD

## Pathology (Consultant)

\*CARL A. SCHWEERS, MD

## Internal Medicine

J. HOBSON VEAZEY, MD  
\*CLIFFORD LORENTZEN, MD, FACP  
\*DAVID D. ROSE, MD  
\*JOE R. HAMILL, MD  
\*KEVIN H. REED, MD  
\*MY Q. TRAN, MD

## Gastroenterology

†MY Q. TRAN, MD

## Administrator

ROGER H. HUGHES

Phone: A/C 405-223-5311

\*Specialty Board Diplomate

†Specialty Board Eligible

# MULTI-SPECIALTY CLINICAL HEALTHCARE FOR SOUTHEASTERN OKLAHOMA

## INTERNAL MEDICINE

STEVEN D. ATWOOD, M.D.  
CHARLES K. HOLLAND, M.D.  
R. KERN JACKSON, M.D.  
KENNETH R. MILLER, M.D.  
LEROY M. MILTON, M.D.

## GASTROENTEROLOGY

JAMES A. GOLLA, M.D.

## OTOLARYNGOLOGY

DONALD E. CRAWLEY, M.D.  
SAMUEL E. DAKIL, M.D.

## SURGERY

WILLIAM G. BLANCHARD, M.D.  
DAVID MacMILLAN, M.D.

## ALLERGY

PAUL S. THOMAS, M.D.

## PEDIATRICS

DELTA W. BRIDGES, JR., M.D.  
THURMAN SHULLER, M.D.  
PAUL S. THOMAS, M.D.

## RADIOLOGY

BRUCE H. BROWN, M.D.

## FAMILY MEDICINE

JOHN B. COTTON, M.D.  
WILLIAM E. GUPTON, M.D.  
STEPHEN D. SWANK, M.D.  
LARRY D. LEWIS, M.D.

## OBSTETRICS-GYNECOLOGY

ROBERT G. CATES, M.D.  
DAVID L. DOYLE, M.D.  
L. DWAIN DOYLE, M.D.  
W. RILEY MURPHY, JR., M.D.

## ADMINISTRATOR

PAUL BISHOP

# The McAlester Clinic, Inc.

1401 E VAN BUREN AVE. • P.O. BOX 908 • McALESTER OK 74502 • 918 426-0240



# Shawnee Medical Center Clinic, Inc.

2801 N. SARATOGA / P.O. BOX 849 / SHAWNEE, OKLAHOMA 74801 / Phone: 405-273-5801

## **ALLERGY**

A. M. Bell, MD\*

## **ANESTHESIOLOGY CONSULTANTS**

Ellis Brown, MD\*

## **DERMATOLOGY**

Bert C. Frichot, III, MD\*

## **GENERAL SURGERY**

Frank H. Howard, MD\*  
Jerold D. Kethley, MD  
S. B. VanLandingham, MD\*

## **INDUSTRIAL MEDICINE**

A. M. Bell, MD  
Jake Jones, Jr., MD

## **INTERNAL MEDICINE**

Michael W. Butcher, MD  
Merle L. Davis, MD  
Larry D. Fetzer, MD  
Eldon V. Gibson, MD\*  
D. A. Mace, MD  
J. B. Jarrell, MD\*

## **NEONATOLOGY**

R. K. Mohan, MD

## **OBSTETRICS, GYNECOLOGY**

Dean W. Papageorge, MD  
Richard E. Jones, MD\*  
Stephen E. Trotter, MD\*

## **ORTHOPEDIC SURGERY**

T. A. Balan, MD, FAAOS\*  
R. M. Kamath, MD, MS\* (Ortho)  
S. M. Waingankar, MD, MS\* (Ortho)

## **OTORHINOLARYNGOLOGY**

S. Rishi, MD\*, MS, FACS

## **PATHOLOGY CONSULTANT**

David L. McBride, MD\*

## **PEDIATRICS**

A. M. Bell, MD\*  
Jake Jones, Jr., MD\*  
R. K. Mohan, MD\*

## **RADIOLOGY CONSULTANTS**

William Phillips, MD\*  
Robert G. Wilson, MD\*  
Cranfill K. Wisdom, MD\*

## **UROLOGY**

N. M. Kotecha, MD\*

## **ADMINISTRATOR**

W. J. Birney

\* Board Certified



## ORTHOPEDIC ASSOCIATES, INC.

3301 N.W. 50th  
Oklahoma City, Oklahoma 73112  
(405) 947-0911

David R. Brown, MD  
Ralph E. Payne, Jr., MD  
J. Charles Monnet, MD  
Michael O. Williams, MD

David A. Flesher, MD  
Nathan E. Bradley, MD  
Thomas H. Flesher III, MD

Diplomates of American Board of Orthopaedic Surgery

**Sports Medicine**  
**Arthroscopic Surgery**

**Surgery of the Spine**  
**Total Joint Replacement**



## PATHOLOGISTS

Jack M. Stephenson, M.D.  
Paul E. Kaldahl, M.D.  
Perry A. Lambird, M.D.  
Michael R. Harkey, M.D.  
Thomas A. Hosty, M.D.  
John R. Rogers, M.D.  
Hatton W. Sumner, M.D.

Ronald J. Biscopink, M.D.  
Robert C. MacKay, M.D.  
Dan F. Keller, M.D.  
Willard Aronson, M.D.  
Fay Knickerbocker, M.D.  
Lynn B. Moon, M.D.  
Peter F. Brumbaugh, M.D.



## Medical Arts Laboratory

100 PASTEUR BUILDING - 1111 N. LEE  
OKLAHOMA CITY, OKLAHOMA 73103

## PATIENT CARE FACILITIES

Pasteur Medical Bldg.  
Room 300 East  
1111 N. Lee

Memorial Professional Bldg.  
13439 N. Broadway Ext.  
Edmond, Okla. 73034

Physicians & Surgeons Bldg.  
Room 105  
1211 N. Shartel

West Laboratory  
Room 100  
3400 N.W. Expressway

North Laboratory  
Room 107  
4200 W. Mem. Rd.

South Laboratory  
Room 107  
1044 S.W. 44

East Laboratory  
Room 113  
711 Stanton Young Blvd.

Classen Laboratory  
1110 N. Classen Blvd.

## TELEPHONE FOR ALL LOCATIONS

Local .....239-7111

OK Toll Free .....1-800-942-3514

## OKLAHOMA LUNG FUNCTION LABORATORY, INC.

R.J. Dougherty, MD

- ☐ Oxygen saturation by oximetry  
(To meet Medicare criteria for  
continued reimbursement for home  
oxygen use)
- ☐ Arterial blood gas analysis

- ☐ Clinical spirometry
- ☐ Lung volumes
- ☐ Diffusing capacity
- ☐ Diagnostic skin testing

235-3338

1111 North Lee, Pasteur Building 224

235-1701

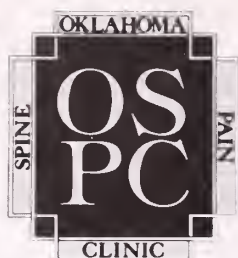
## CENTRAL OKLAHOMA AMBULATORY SURGICAL CENTER, INC.

W. Edward Dalton, MD, FACS   Paul Silverstein, MD, FACS   J. Michael Kelly, MD, FACS  
Plastic, Reconstructive & Cosmetic Surgery; Surgery of the Hand & Congenital Deformities;  
Oncologic Surgery of the Head and Neck, Burn Surgery

3301 Northwest 63rd Street, Oklahoma City, Okla. 73116

(405) 842-9732

Board Certified in Plastic Surgery  
Board Certified in General Surgery



## Oklahoma Spine/Pain Clinic

Multi-disciplinary approach  
to evaluation and treatment  
of acute or chronic musculoskeletal pain.

William N. Harsha, MD  
Diplomate American Board Orthopaedic Surgery

Doctors Medical Building  
Oklahoma City, Oklahoma 73112  
5700 N.W. Grand Blvd.  
(405) 943-9561

## OKLAHOMA UROLOGY CENTER

CHARLES L. REYNOLDS, JR., MD, INC.

Urology-Genitourinary Surgery  
Diseases Kidney-Bladder-Prostate  
Female-Male Children & Adults  
Micro Surgery for Infertility  
Prosthetic Surgery for Impotency  
Urinary Incontinence

3131 NORTHWEST EXPRESSWAY  
SUITE 201  
OKLAHOMA CITY, OKLAHOMA 73112

TOLL FREE (800) 522-8668  
OFFICE (405) 843-5761 RESIDENCE (405) 842-6420  
IF NO ANSWER (405) 523-1999

## OKLAHOMA HAND SURGERY CENTER, INC.



Carlos A. Garcia-Moral, MD, FACS

405/232-3210

711 Stanton L. Young Boulevard, Suite 510 Oklahoma City, Ok 73104

### AEROSPACE MEDICINE

CLYDE A. LYNN, BA, MPH, MD  
Board Certified, Aerospace Medicine  
Fellow, American College of Preventive Medicine  
Flight Surgeon, US Army and Navy  
Commercial Pilot and Flight Instructor, Instrument and Multi-engine  
Referrals for Medical Certification of Pilots Accepted  
by Appointment

1317 Brookhaven Blvd.  
Norman, OK 73069

Senior Aviation Examiner  
FAA NO. 07448-1

(405)  
329-2625

### ALLERGY

Northwest Medical Center

NORTHWEST ALLERGY CLINIC, INC.

Suite 602

John L. Davis, M.D.  
3330 N.W. 56th  
Oklahoma City, Oklahoma 73112  
405 843-6619

JAMES A. MURRAY, MD, INC.  
Diagnosis and Treatment of Allergic Diseases  
Adults and Children

JAMES A. MURRAY, MD  
Fellow American Academy of Allergy  
Fellow American College of Allergists  
Diplomate American Board of Allergy and Immunology

Suite 101 6465 South Yale Avenue  
Warren Professional Building (918) 492-0484  
Tulsa, Oklahoma 74177

OKLAHOMA ALLERGY CLINIC, INC.

Specializing in the Diagnosis and Treatment of Allergic Disease

George L. Winn, MD† John R. Bozalis, MD†\*  
Robert S. Ellis, MD†\* James D. Lakin, PhD, MD†\*  
Lyle W. Burroughs, MD†\* John S. Irons, MD†\*  
Charles D. Haunschild, MD†\* Warren V. Filley, MD†\*  
James H. Wells, MD†\*

Senior Consultants: George S. Bozalis, MD; Vernon D. Cushing, MD†\*

† Diplomate American Board of Allergy and Immunology  
\* Diplomate American Board of Internal Medicine  
° Diplomate American Board of Pediatrics

Office Address:	Mail Address:	NWOKC Office:	Norman Office:
750 NE 13th St	PO Box 26827	4200 W Memorial	900 N Porter
Okla City, OK	Okla City	Room 112	Suite 600
405-235-0040	OK 73126	405-235-0040	405-235-0040

CARDIOVASCULAR

CARDIOVASCULAR ASSOCIATES

Adult Cardiovascular Diseases

Cardiac Catheterization, Aortography and Selective Coronary Arteriography  
Coronary and Peripheral Angioplasty

Telephone Electrocardiography (24 hr. service), Treadmill  
Effort Tolerance, Hypertensive Evaluation

\*J.J. Donnell, MD 947-2556 \*G.L. Honick, MD 943-8428  
\*J.L. Bressie, MD 946-0568 A.F. Elliott, MD 943-8421

A.S. Dahr, MD 947-2321 Gary Worcester, MD 943-4134  
\*Jan Voda, MD 947-1297 Stanley A. Horst, MD 946-0606

\*Certified by the American Board of Cardiovascular Disease  
Doctors Medical Building

8th Floor 5700 N.W. Grand Blvd. Oklahoma City, Oklahoma 73112

CARDIOVASCULAR CLINIC

Wm. Best Thompson, MD	Ronald H. White, MD	W.H. Oehlert, MD
Galen P. Robbins, MD	William J. Fors, MD	Charles F. Bethea, MD
Williams S. Myers, MD		Fred E. Lybrand, MD
Lawrence M. Higgs, MD		Mei Clark, MD

CARDIOVASCULAR DISEASES

Cardiac catheterization, aortography and coronary arteriography  
Coronary and Peripheral angioplasty, telephone electrocardiography  
and echocardiography

Nuclear cardiology and Treadmill effort tolerance

CARDIOVASCULAR BUILDING

3300 Northwest 56th Oklahoma City, Okla. 73112 Telephone 947-3341

DERMATOLOGY

RONALD W. GILCHRIST, JR., MD

Diseases and Malignancies of the Skin

Oklahoma City, OK 73109 X-Ray and CO<sub>2</sub> Laser Therapy 632-5565  
3500 South Western

SKIN & SKIN CANCER CENTER, INC.

C. Jack Young, MD

Radium Therapy Hemangiomas X-Ray Therapy

CLINIC BUILDING 3434 N.W. 56th  
OKLAHOMA CITY, OKLAHOMA 946-5678

OPHTHALMOLOGY

JAMES L. DUNAGIN, JR., MD

Diseases and Surgery of the Eye

Diplomate American Board of Ophthalmology  
6th and Washington 918-426-1432 McAlester, Oklahoma 74501

John W. Huneke, MD, FACS, Inc.

Diseases and Surgery of the Eye

Certified by the American Board of Ophthalmology  
Phone 332-1880 1414 Arlington Suite 2300 Ada, Oklahoma 74820

JAMES B. MILLS, MD

232-4222

Surgery and Diseases of the Eye

JAY C. JOHNSTON, MD 232-5543  
Lacrimal Surgery, Dacryocystorhinostomy, Jones Tubes

Certified by the American Board of Ophthalmology  
425 NW 11th Street Oklahoma City 73103

V. JERRY SHEPARD, MD

Diseases and Surgery of the Eye

Certified by the American Board of Ophthalmology  
3400 N.W. 56th St. Suite G-2 Phone 946-3327 Oklahoma City 73112

ORTHOPEDICS

DUNCAN REGIONAL ORTHOPAEDIC ASSOCIATES, INC.

THOMAS J. EISER, MD

ROBERT M. SIMPSON, MD

ORTHOPAEDIC SURGERY & SURGERY OF THE HAND

DIPLOMATES AMERICAN BOARD OF ORTHOPAEDIC SURGERY  
FELLOWS, AMERICAN ACADEMY OF ORTHOPAEDIC SURGEONS

OFFICE (405) 252-3400 2815 W. Elk  
DUNCAN, OKLAHOMA 73533

ORTHOPEDIC SURGERY AFFILIATES, INC.

1044 S.W. 44th

Oklahoma City, Oklahoma 73109

405-631-7444

Dale R. Butler, MD, FACS

J.A. Rosacker, MD

G. David Casper, MD

HOUSHANG SERADGE, MD, FICS

Diplomate American Board of Orthopaedic Surgery  
Hand and Reconstructive Microsurgery

1044 S.W. 44th Street, Suite 620

Oklahoma City, Oklahoma 73109

Phone (405) 631-4263

Professional card listings are available to  
OSMA members. They are sold in vertical in-  
crements of one-half inch at the rate of \$50.00  
per half inch per year.



## ORTHOPEDICS (continued)

JOHN RAYMOND STACY, MD, FACS  
Diplomate American Board of Orthopedic Surgery  
Orthopedic and Fracture Surgeon  
Oklahoma City, Oklahoma

415 N W 12th St.

235-6315

## OTOLARYNGOLOGY HEAD AND NECK SURGERY

Oklahoma Otolaryngology Associates  
RAYMOND O. SMITH, JR., MD, FACS  
Head and Neck Surgery  
Facial Plastic and Reconstructive Surgery  
4200 West Memorial Road, Suite 606  
Oklahoma City, Oklahoma 73120  
Phone 405 755-1930

## PEDIATRIC SURGERY

E. IDE SMITH, MD\* WM. P. TUNELL, MD\* DENNIS J. HOELZER, MD\*

940 NE 13th Street, Oklahoma City, Oklahoma 73104

Office: 405-271-4356 After hours: 405-523-6739 (then enter your phone no.)

\*American Board of Surgery — Special Competence in Pediatric Surgery

## PSYCHIATRY

LARRY PRATER, MD  
Practice Limited to Psychiatry  
Suite 318 Classen Professional Bldg. 232-5453 272-7155  
1110 Classen Boulevard Oklahoma City, Oklahoma 73106

PSYCHIATRY  
Robert J. Outlaw, MD, FAPA  
R. Murali Krishna, MD, MAPA  
Diplomates of American Board of Psychiatry and Neurology in Psychiatry  
Shree S. Vinekar, MD, FAACP  
Diplomate of American Board of Psychiatry and Neurology  
in Psychiatry and Child Psychiatry  
John C. Andrus, MD, MAPA  
Thurman E. Coburn, PhD, Licensed Clinical Psychologist  
Philip J. Murphy, PhD, Licensed Clinical Psychologist  
David Schwartz, ACSW, Clinical Psychiatric Social Worker  
Suite 308 Physicians and Surgeons Building  
1211 North Shartel, Oklahoma City 73103  
(405) 272-0734

## JAY TALMADGE SHURLEY, MD

Life Fellow, American Psychiatric Association;  
Charter Fellow, American College of Psychiatrists

Eminent Professor of Psychiatry & Behavioral Sciences  
University of Oklahoma College of Medicine  
Consultant in Neuropsychiatry, SLEEP DISORDERS CENTER, Presbyterian Hospital

Diagnosis, Management & Treatment of  
DISORDERS OF SLEEPING, WAKING, & DREAMING  
(Emphasis on Narcolepsy, Sleep Walking, Nightmares)

6406 "A" North Santa Fe  
Oklahoma City, OK 73116

(405) 840-3793

HAROLD G. SLEEPER, MD, FAPA  
Diplomate American Board of Psychiatry  
and Neurology in Psychiatry  
Adult and Adolescent Psychiatry  
2801 Parklawn Drive, Suite 505  
Midwest City, Oklahoma 73110  
(405) 733-8244

## PULMONARY DISEASE

### PULMONARY ASSOCIATES

STEPHEN N. ADLER, MD TIMOTHY L. GRODE, MD  
Diplomates  
American Board of Internal Medicine  
American Board of Internal Medicine - Pulmonary Disease

Pulmonary Medicine  
Pulmonary Function and Methacholine Testing  
Pulmonary Artery (Swan-Ganz) Catheterization  
Fiberoptic Bronchoscopy  
Lung Needle Biopsy  
Critical Care Medicine

Mercy Doctors Tower  
Oklahoma City, OK 73120

4200 Memorial Road  
(405) 755-4290

### RAYMOND J. DOUGHERTY, MD

Diplomate American Board of Pulmonary Disease  
Practice Limited to Pulmonary Disease

Special Interest in Adult and Adolescent Asthma

204 Pasteur Building

Oklahoma City, Oklahoma 73103

235-1701

### NORMAN K. IMES, MD

### DENNIS M. PARKER, MD

Diplomates American Board of Internal Medicine  
American Board of Internal Medicine - Pulmonary Disease  
Consultants in Diseases of the Chest  
Fiberoptic Bronchoscopy  
Pulmonary Function Evaluation  
Intensive Care Medicine

3330 N W 56 Street

Oklahoma City, Oklahoma 73112

(405) 949-9400

## RADIOLOGY

### CHET BYNUM, MD

### GLENNA YOUNG, MD

Fluoroscopy  
Xeromammography

### DIAGNOSTIC RADIOLOGY

### WHOLE BODY CT SCANNING

Tomography  
Ultra Sonography

13301 N Meridian Bldg. 300  
Oklahoma City, Oklahoma 73120  
(405) 752-0186

1125 N. Porter  
Norman, Okla. 73071  
(405) 364-1071

### RADIOLOGY ASSOCIATES, INC.

JAMES T. BOGGS, MD MICHAEL A. SARTIN, MD  
ROBERT SUKMAN, MD, FACR RALF E. TAUPMANN, MD  
WILLIAM R. ALBRACHT, MD GARY G. ROBERTS, MD  
ROGER B. COLLINS, MD JOHN R. OWEN, MD  
GEORGE BEN CARTER, MD HAROLD D. DAVIDSON, MD  
RICHARD B. PRICE, MD, FACR, DABNM JAY A. HAROLDS, MD, DABNM

Diplomates American Board of Radiology  
X-Ray-Diagnosis including Ultra Sonography, Xeromammography,  
Radiation Therapy — Nuclear Medicine — CAT Scanning  
Digital Subtraction

204 Medical Tower Bldg. 848-7741  
400 Physicians Prof. Bldg. 943-9646  
700 Doctors Medical Bldg. 946-9923

Baptist Medical Center 949-3202  
Deaconess General Hospital 946-5581  
206 N W. Med. Ctr. Bldg. 946-8999

RADIOLOGIC SPECIALTIES, LTD  
4045 Northwest 64th Street, Suite 125  
Oklahoma City, Oklahoma 73116

Practice Limited To Whole Body CT Scanning

V.C. Tisdal III, MD (405) 848-0075 Rebecca Goen Tisdal, MD

Diplomates American Board of Radiology

## SURGERY

James E. Cheatham, Jr., MD

3400 N.W. Expressway, Suite 607  
Oklahoma City, OK 73112  
948-7272

Specializing in Open Heart Surgery

ROBERT B. HOWARD, MD, FACS

Certified American Board of Surgery

Practice Limited to General Surgery and Diseases of the Thyroid Gland  
544 Pasteur Medical Bldg Phone 235-2341 Oklahoma City

MICHAEL E. REIF, MD

Diplomate American Board of Surgery

Fellow American College of Surgery

General and Peripheral Vascular Surgery

708 Mercy Doctors Tower By Appointment 755-1750  
4200 West Memorial Road Oklahoma City, OK 73120 After Hours 232-8861

## SURGERY, COLON AND RECTAL

ROBERT J. CAPEHART, MD

2325 South Harvard

Tulsa, Oklahoma 74114

Suite 306

(918) 744-5817

Practice Limited To Colon & Rectal Surgery and Colonoscopy

## SURGERY, HAND

Patrick T. Sterbank, PA

Physician Associate

HOUSHANG SERADGE, MD, FICS

Diplomate American Board of Orthopaedic Surgery

Hand and Reconstructive Microsurgery

1044 S.W. 44th Street, Suite 620

Oklahoma City, Oklahoma 73109

Phone (405) 631-4263 631-HAND

## SURGERY, RECONSTRUCTIVE AND PLASTIC

PARAMJIT S. BAJAJ, MD, FACS

FRCS (England), FRCS (Edinburgh)

Certified American Board of Plastic Surgery

Maxillofacial and Cosmetic Surgery

Surgery of the Hand

1110 N. Classen Blvd.  
Suite 304

235-6671

Oklahoma City, Okla. 73106

LEONARD H. BROWN, MD

Diplomate American Board of Surgery

Diplomate American Board of Plastic Surgery

Plastic and Reconstructive Surgery

Cosmetic Surgery

6913 S. Canton

Tulsa, Oklahoma 74136

492-3964

WILLIAM J. FORREST, MD

Plastic and Reconstructive Surgery

Surgery of the Hand

3400 N.W. Expressway

Oklahoma City

947-8760

HERBERT M. KRAVITZ, MD, FACS

Diplomate American Board of Plastic Surgery

Reconstructive, Cosmetic and Cleft Palate Surgery

Office (405) 946-2694

2620 Northwest Expressway

Oklahoma City, Oklahoma

## UROLOGY

GENE T. BAUMGARNER, MD, FACS

Diplomate of the American Board of Urology

Mercy Doctors Tower

4200 West Memorial Road

Oklahoma City, Oklahoma 73120

(405) 755-3723

A. de QUEVEDO, MD, Inc.

Diplomate of the American Board of Urology

Suite 606

1211 N. Shartel

Oklahoma City, Oklahoma 73103

232-1333

PHILIP D. DIGGDON, MD, FACS

Diplomate of the American Board of Urology

312 Warren Prof. Bldg, 6465 S. Yale, Tulsa, OK

Office: (918) 492-6322 Home: (918) 492-1143

Same day service

2801 Parklawn Dr., #300

CLARK HYDE, MD

1110 N. Classen, #205

Pediatric and Adult Urology

Midwest City, OK 73110

Oklahoma City, OK 73106

(405) 737-5667

(405) 232-0273

BARNEY J. LINES, MD, FACS

1211 N. Shartel, Suite 208

Oklahoma City, Okla. 73101

Phone 235-0315

2801 Parklawn Dr., Suite 300

Midwest City, Okla. 73110

Phone 737-3538

Practice Limited to Urology

Diplomate American Board of Urology

JOSEPH D. PARKHURST, MD, FACS

Diplomate American Board of Urology

2345 N. Tompkins

Bethany, OK 73008

495-6134

1214-D S. 11th

Yukon, OK 73099

CHARLES L. REYNOLDS, JR., MD, FACS, FICS

DIPLOMATE of the AMERICAN BOARD of UROLOGY

DISEASES of the KIDNEY, BLADDER, and PROSTATE

3131 NORTHWEST EXPRESSWAY

OKLAHOMA CITY, OKLAHOMA 73112

OFFICE (405) 843-5761

RESIDENCE (405) 842-6420

IF NO ANSWER (405) 523-1999

1110 Classen Blvd.  
Oklahoma City, OK  
73106

JAMES R. WENDELKEN, MD

Pediatric and Adult Urology

Telephone (405) 232-0273

2801 Parklawn

Midwest City, OK

73110

PHILLIP H. WINSLOW, MD, FACS

Diplomate American Board of Urology

Hours by Appointment

(405) 765-7620

Answering Service: (405) 765-5826

Medical Plaza

123 Patton Drive

Ponca City, OK 74601

**Professional card listings are available to OSMA members. The cards are sold in vertical increments of one-half inch at the rate of \$50.00 per half inch per year.**

## INDEX TO ADVERTISERS

Alpha Therapeutic Corporation .....	254
American Medical International .....	219
Ayerst Laboratories ( <i>Inderide LA</i> ) .....	223
The Arthritis Clinic .....	286
The Cardiac Surgeons of Oklahoma City, Inc. ....	283
Central Oklahoma Ambulatory Surgical Center, Inc. ....	289
Cooper Brothers .....	222
Copper Lake .....	221
Curtis 1000 Information Systems .....	278
Edmond Medical Plaza .....	258
Elk City Community Hospital .....	252
C. L. Frates & Co., Inc. ....	248
Glass-Nelson Clinic .....	286
Harsha Orthopedic, Inc. ....	290
Knoll Pharmaceutical Company ( <i>Isoptin</i> ) .....	216
Eli Lilly Industries ( <i>Ceclor</i> ) .....	212
McAlester Clinic .....	287
Medical Arts Clinic of Ardmore .....	287
Medical Arts Laboratory .....	289
Oklahoma Allergy Clinic .....	284
Oklahoma Center for Athletes .....	284
Oklahoma City Clinic .....	IFC
Oklahoma Hand Surgery Center, Inc. ....	290
Oklahoma Lung Function Laboratory .....	289
Oklahoma Urology Center .....	290
Orthopedic & Arthritis Center .....	285
Orthopedic Associates .....	288
PLICO Health .....	276
PLICO Loss Prevention Seminars .....	275
Prodata Medical Systems .....	211
Professional Office Management .....	214
Rehabilitation Institute of Oklahoma .....	256
Roche Products, Inc. ( <i>Dalmane</i> ) .....	IBC, BC
RTS Replacement Service, Inc. ....	255
Shawnee Medical Center Clinic, Inc. ....	288
Shealy Pain & Health Rehabilitation Institute .....	250
SmithKline & Beckman ( <i>Dyazide</i> ) .....	215, 280
Southern Plains Medical Center, Inc. ....	285
Stillwater National Bank .....	277
Tulsa Adjustment Bureau, Inc. ....	251
Tulsa Magnetic Imaging .....	281
The Upjohn Company ( <i>Motrin 800</i> ) .....	279
VA Medical Center, Muskogee .....	257
G. D. Williamson, MD .....	257, 261
Willow View Hospital .....	282
Windy Meadow Farm .....	220



### OFFICERS of the OKLAHOMA STATE MEDICAL ASSOCIATION

Elvin M. Amen, MD, President;  
Norman L. Dunitz, MD, President-Elect;  
M. Joe Crosthwait, MD, Vice-President; Ray L. Cornelison, Jr., MD,  
Secretary-Treasurer; Larry L. Long, MD, Speaker, House of Delegates;  
Robert G. Perryman, MD, Vice-Speaker, House of Delegates; Michael  
J. Haugh, MD, Chairman, Board of Trustees; and James B. Eskridge  
III, MD, Immediate Past President.

## INSTRUCTIONS FOR AUTHORS

### Contributions

Articles submitted for publication, including Annual Meeting papers, become the sole property of the JOURNAL and must not have been published elsewhere. The Editorial Board reserves the right to edit any material submitted. Manuscripts must be typewritten, double-spaced, and submitted in duplicate. Receipt of manuscripts will be acknowledged, and unpublished manuscripts will be returned. The JOURNAL does not assume responsibility for the statements or opinions of any contributor.

### Style

All manuscripts should adhere to the style adopted by the American Medical Association as illustrated in *JAMA* and detailed in the AMA's *Manual for Authors & Editors*. Footnotes, bibliographies, and legends for illustrations should be typewritten, double-spaced, on separate sheets. References are to be listed in the order of their appearance in the article.

### Illustrations

Illustrations other than the author's will not be accepted for publication unless accompanied by written permission from the original source. Illustrations should be labeled with the author's name and must be numbered in the order in which they are referred to in the article. The quality of all illustrations must be in keeping with the quality of the magazine.

### News

Readers are encouraged to submit news items of interest to Oklahoma physicians. Where dates of meetings, etc., are important, please remember that each issue closes on the first day of the *preceding* month and reaches subscribers in the latter half of the month of publication.

### Reprints

Authors will receive reprint order forms from the Transcript Press, 222 East Eufaula, Norman, Oklahoma 73069, prior to publication of their articles. Other requests for reprints must be made to the Transcript Press within 30 days after publication.

### Back Issues

Microfilm copies of back issues of the JOURNAL can be purchased from University Microfilms International, 300 North Zeeb Road, Ann Arbor, Michigan 48106.





## Come Blow Your Horn !

"COME BLOW YOUR HORN!" one final time as the OSMAA gives itself "Applause" during the 1986 Annual Meeting to be held May 8-10 at the Excelsior Hotel in Tulsa.

In keeping with President Mary Ann Deen's musical themes, convention activities will also feature musical themes such as the Joint Board Luncheon with the theme "Applause" and the Friday "State Fair" Luncheon and Bazaar.

In addition to the important business agenda, other auxiliary activities are designed to promote friendships, fun, camaraderie, laughter . . . A GOOD TIME! Activities will include:

- A CUSTOM TOUR by Special Arrangements will feature a drive-by tour of historical sights and shopping at the Brookside specialty boutiques and antique shops.
- STARTING YOUR OWN BUSINESS. Gae Bachle and Patsy Vosburgh, two of four owners of RIBBONS on Peoria — a unique boutique in Brookside — will share the details for starting a business.
- FLEA MARKET SHOPPING. You haven't experienced flea market shopping until you've experienced Tulsa flea market shopping!
- COFFEE HONORING MEMBERS-AT-LARGE and RP/MSS MEMBERS
- The HOSPITALITY ROOM will feature interesting displays and demonstrations.

The highlight of the meeting will be the presence of our AMA Auxiliary President Mary Kay McPhee from Kansas City, Missouri.

Mary Kay McPhee (William R.) of Kansas City, Missouri, was installed as President of the American Medical Association Auxiliary at the 1985 Annual Convention in Chicago. Over the past 10 years, she has served as president of both her county and state auxiliaries and at the national level in numerous elected and appointed positions.



Mary Kay McPhee

Recently, she and Dr McPhee completed a three-year term on the National Board of Directors of the Association of Couples for Marriage Enrichment. She has participated as a member of the board of directors and president of several major Kansas City institutions, agencies, and organizations. Mrs McPhee has also served on several statewide task forces.

Mrs McPhee's major interests have always been focused on strengthening the family, children and youth, and quality education. Among her awards are the Woman of Achievement Award from the Mid-Continent Council of Girl Scouts; the Community Service Award from Women in Communications; a service award from North Kansas City Hospital Auxiliary; and a special citation from the Missouri Volunteers Against Hunger.

A native of Topeka, Kansas, Mrs McPhee received her BS degree in education from the University of Kansas and taught third grade for two years. She and Dr McPhee, a pathologist, have two children and four grandchildren.

We are honored to have as our guest, for the fifth consecutive year, the AMA Auxiliary President.

Mark your calendars now and plan to "COME BLOW YOUR HORN!" May 8-10.

— Jane Ann Harper  
OSMAA Convention Chairman

## THE LAST WORD

■ **The Oklahoma City AIDS Task Force Clinic** is held at 7:30 PM every Monday evening at the Oklahoma Blood Institute, Northeast 10th and Lincoln Boulevard. All members of high-risk groups or anyone else concerned about exposure to HTLV-III virus are urged to have the antibody test done. No appointment is necessary. Other screening tests are also available. Additional information can be obtained from the AIDS Support Program of Oasis Community Center, 2135 Northwest 39th Street, Oklahoma City, telephone (405) 525-AIDS.

■ **Public relations directors, administrators,** and others with news releases for the JOURNAL are urged to submit the items *early*. Of the news items received in the JOURNAL office each month, many arrive too late to be included in the appropriate issue. Please remember that for your news to appear in a given issue, it must be received in the JOURNAL office by the first of the month *preceding* that issue (eg, news for the June issue must be received by May 1). Remember also that because the JOURNAL arrives late in the month, news of an upcoming seminar, for example, must appear the month before the seminar. Please help the JOURNAL help you by sending your news *early* to OSMA JOURNAL, 601 Northwest Expressway, Oklahoma City, OK 73118.

■ **Growth in AMA membership last year exceeded** the goals set for 1985 by 2.5%. The total number of members at the end of the year stood at 271,579, which represented an increase of 12,835 over 1984's total of 258,744, and is the ninth consecutive increase since 1976. Growth in the three main dues-paying categories averaged 2% over their goals, with regular members increasing by 6,021 to 165,157, and medical students increasing by 2,604 to 32,215. Housestaff membership exceeded its goal by 7.6%, for a total of 33,361, an increase of 3,639 over 1984. The number of dues-exempt members increased by 571 to 40,846. Revenue from dues increased by \$1.5 million to \$53,458,937.

■ **Preliminary studies from the Albert Einstein** College of Medicine in the Bronx, NY, show that periodic intravenous gamma globulin treatments restored suppressor T cells to the normal range and prevented almost all bacterial infections in some children with AIDS or AIDS-related complex. Reporting in the February *American Journal of Diseases of Children*, Asha Gupta, MD, and colleagues say 3 to 5 children, ranging in age from 6 months to 6 years, responded positively to treatments during a period of 4 to 13 months. Two children, whose suppressor T cells did not return to the normal range, died of opportunistic infections several months after completion of the study.

■ **Transplant chemistry test costs at the University of Pittsburgh School of Medicine** zoomed from \$47,000 per year to \$1.2 million in the four years following the arrival of surgeon Thomas Starzl, MD, reports Ajit Sanghvi, PhD, in the February *Archives of Pathology and Laboratory Medicine*. "The number of transplant-related clinical chemistry procedures (primarily cyclosporine and liver and renal function tests) increased from 1.4 percent of the total chemistry tests in 1979-1980 to 21 percent of the total in 1983-1984," Sanghvi says. "These data quantify the level of laboratory support that is required to sustain a viable and ambitious organ transplant program," he concludes.

■ **Charles M. Cameron, Jr., MD, Oklahoma City,** has been appointed an alternate member of the AMA's Residency Review Committee on Preventive Medicine. Midwest City's M. Joe Crosthwait, MD, has been appointed to the AMA's Advisory Committee on Public Awareness.

■ **The OSMA's half-hour film, "Preserving Tradition, Embracing Change,"** will premiere in the OSMA House of Delegates during next month's Annual Meeting in Tulsa. Produced in Tulsa and narrated by Martin Landau, the film describes conditions in US medicine today. □



EXCERPTS FROM A SYMPOSIUM  
"THE TREATMENT OF SLEEP DISORDERS"<sup>8</sup>

“... highly effective  
for both sleep induction and  
sleep maintenance”

Sleep Laboratory Investigator  
Pennsylvania

“... onset of action is  
rapid... provides sleep with  
no rebound effect to agitate the  
patient the following day”

Psychiatrist  
California

“... appears to have  
the best safety record of any  
of the benzodiazepines”

Psychiatrist  
California

After 15 years, the experts still concur about the continuing value of Dalmane (flurazepam HCl/Roche). It provides sleep that satisfies patients... and the wide margin of safety that satisfies you.

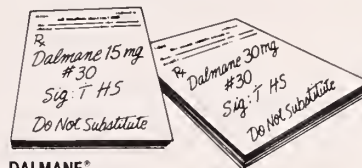
The recommended dose in elderly or debilitated patients is 15 mg. Contraindicated in pregnancy.

**DALMANE**<sup>®</sup>  
brand of  
flurazepam HCl/Roche <sup>®</sup>  
**sleep that satisfies**

15-mg/30-mg  
capsules



References: 1. Kales J, et al: *Clin Pharmacol Ther* 12:691-697, Jul-Aug 1971. 2. Kales A, et al: *Clin Pharmacol Ther* 18:356-363, Sep 1975. 3. Kales A, et al: *Clin Pharmacol Ther* 19:576-583, May 1976. 4. Kales A, et al: *Clin Pharmacol Ther* 32:781-788, Dec 1982. 5. Frast JD Jr, DeLucchi MR: *J Am Geriatr Soc* 27:541-546, Dec 1979. 6. Dement WC, et al: *Behav Med*, pp. 25-31, Oct 1978. 7. Kales A, Kales JD: *J Clin Psychopharmacol* 3:140-150, Apr 1983. 8. Tennant FS, et al: Symposium on the Treatment of Sleep Disorders, Teleconference, Oct 16, 1984. 9. Greenblatt DJ, Allen MD, Shader RI: *Clin Pharmacol Ther* 21:355-361, Mar 1977.



**DALMANE**<sup>®</sup>  
brand of  
flurazepam HCl/Roche <sup>®</sup>

Before prescribing, please consult complete product information, a summary of which follows:

**Indications:** Effective in all types of insomnia characterized by difficulty in falling asleep, frequent nocturnal awakenings and/or early morning awakening, in patients with recurring insomnia or poor sleeping habits, in acute or chronic medical situations requiring restful sleep. Objective sleep laboratory data have shown effectiveness for at least 28 consecutive nights of administration. Since insomnia is often transient and intermittent, prolonged administration is generally not necessary or recommended. Repeated therapy should only be undertaken with appropriate patient evaluation.

**Contraindications:** Known hypersensitivity to flurazepam HCl; pregnancy. Benzodiazepines may cause fetal damage when administered during pregnancy. Several studies suggest an increased risk of congenital malformations associated with benzodiazepine use during the first trimester. Warn patients of the potential risks to the fetus should the possibility of becoming pregnant exist while receiving flurazepam. Instruct patients to discontinue drug prior to becoming pregnant. Consider the possibility of pregnancy prior to instituting therapy.

**Warnings:** Caution patients about possible combined effects with alcohol and other CNS depressants. An additive effect may occur if alcohol is consumed the day following use for nighttime sedation. This potential may exist for several days following discontinuation. Caution against hazardous occupations requiring complete mental alertness (e.g., operating machinery, driving). Potential impairment of performance of such activities may occur the day following ingestion. Not recommended for use in persons under 15 years of age. Withdrawal symptoms rarely reported, abrupt discontinuation should be avoided with gradual tapering of dosage for those patients on medication for a prolonged period of time. Use caution in administering to addiction-prone individuals or those who might increase dosage.

**Precautions:** In elderly and debilitated patients, it is recommended that the dosage be limited to 15 mg to reduce risk of oversedation, dizziness, confusion and/or ataxia. Consider potential additive effects with other hypnotics or CNS depressants. Employ usual precautions in severely depressed patients, or in those with latent depression or suicidal tendencies, or in those with impaired renal or hepatic function.

**Adverse Reactions:** Dizziness, drowsiness, lightheadedness, staggering, ataxia and falling have occurred, particularly in elderly or debilitated patients. Severe sedation, lethargy, disorientation and coma, probably indicative of drug intolerance or overdosage, have been reported. Also reported: headache, heartburn, upset stomach, nausea, vomiting, diarrhea, constipation, GI pain, nervousness, talkativeness, apprehension, irritability, weakness, palpitations, chest pains, body and joint pains and GU complaints. There have also been rare occurrences of leukopenia, granulocytopenia, sweating, flushes, difficulty in focusing, blurred vision, burning eyes, faintness, hypotension, shortness of breath, pruritus, skin rash, dry mouth, bitter taste, excessive salivation, anorexia, euphoria, depression, slurred speech, confusion, restlessness, hallucinations, and elevated SGOT, SGPT, total and direct bilirubins, and alkaline phosphatase, and paradoxical reactions, e.g., excitement, stimulation and hyperactivity.

**Dosage:** Individualize for maximum beneficial effect. *Adults* 30 mg usual dosage; 15 mg may suffice in some patients. *Elderly or debilitated patients:* 15 mg recommended initially until response is determined.

**Supplied:** Capsules containing 15 mg or 30 mg flurazepam HCl.



Roche Products Inc.  
Manati, Puerto Rico 00701

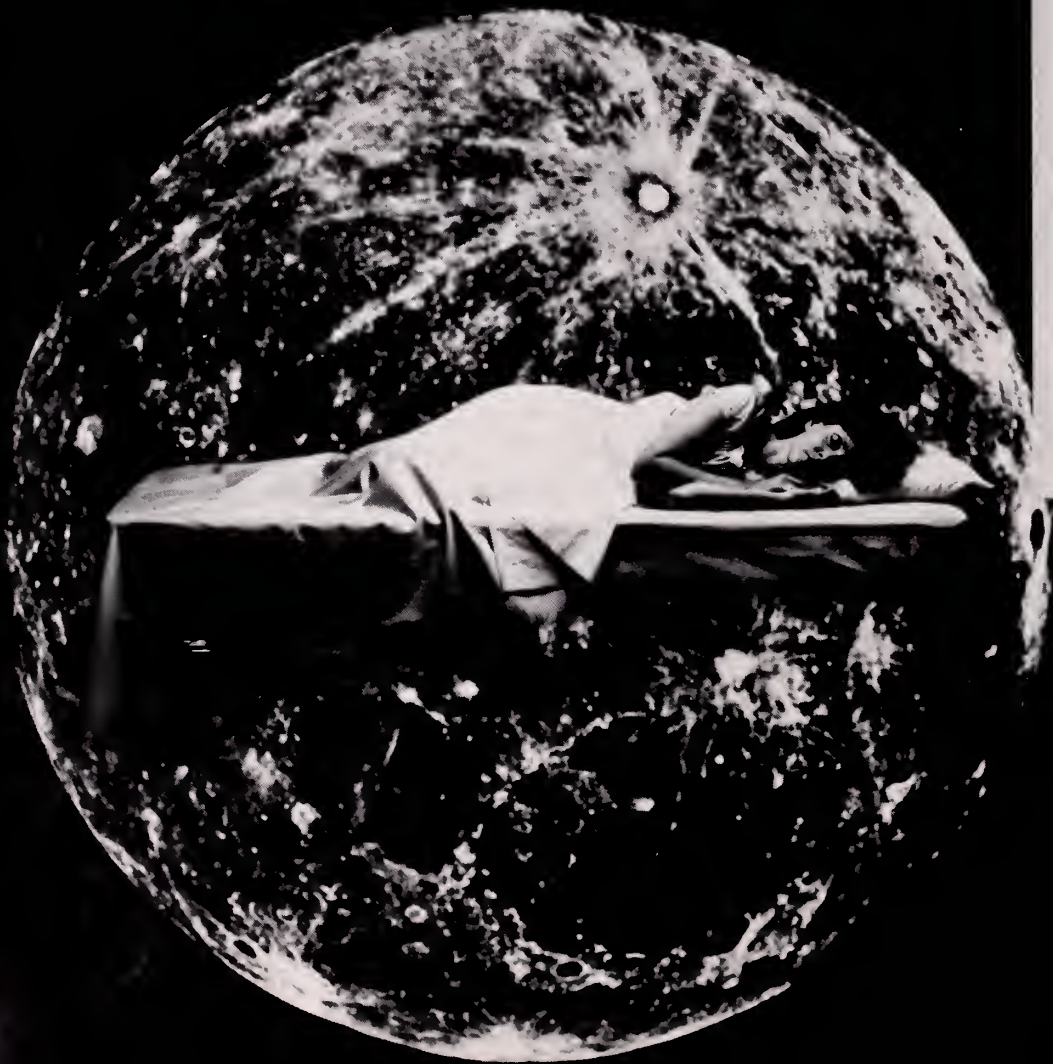


# #1 FOR SLEEP

After more than 15 years of use, it's #1 for sleep that satisfies. Patients are satisfied because they fall asleep fast and stay asleep till morning.<sup>1-8</sup> And *you're* satisfied by the exceptionally wide margin of safety.<sup>7-9</sup> As always, caution patients about driving or drinking alcohol.

Please see preceding page for summary of product information.

**DALMANE<sup>®</sup>**  
brand of  
flurazepam HCl/Roche ©  
**sleep that satisfies**



EX  
THE NY ACADEMY OF MEDICI  
2 EAST 103RD ST  
NEW YORK NY 10029

# JOURNAL

OKLAHOMA STATE MEDICAL ASSOCIATION  
MAY 1986



**Norman L. Dunitz, MD**

OSMA PRESIDENT 1986-87

---

**CARDIOLOGY**

Charles W. Cathey, M.D.  
Charles W. Robinson, Jr., M.D.  
Thomas R. Russell, M.D.  
Paul C. Houk, M.D.  
Stanley G. Rockson, M.D.

---

**CARDIOVASCULAR  
THORACIC  
SURGERY**

Edward R. Munnell, M.D.  
R. Nathan Grantham M.D.  
Paul J. Kanaly, M.D.

---

**CLINICAL PSYCHOLOGY**

Lucien D. Rose, Ph.D.

---

**DERMATOLOGY****MOHS SURGERY**

William J. Sahl, Jr., M.D.  
Michael D. John, M.D.

---

**OTOLARYNGOLOGY****HEAD AND NECK SURGERY**

C. Joseph Wine, M.D.  
Joseph E. Leonard, M.D.  
Willard B. Moran, Jr., M.D.

---

**ENDOCRINOLOGY - DIABETES**

James L. Males, M.D.  
Ronald P. Painton, M.D.  
Jonathan L. Davis, M.D.

---

**GASTROENTEROLOGY**

Malcolm G. Robinson, M.D.  
David A. Neumann, M.D.  
Gretchen A. McCoy, M.D.  
Mark H. Mellow, M.D.

---

**GENERAL SURGERY**

Frank G. Gatchell, M.D.  
Jay P. Cannon, M.D.

---

**HEMATOLOGY - ONCOLOGY**

Ralph G. Ganick, M.D.  
Mark E. King, M.D.

---

**AMBULATORY CARE**

Kent C. Hensley, M.D.  
Leslie A. Arneson, M.D.

---

**INFECTIOUS DISEASES**

Daniel J. Sexton, M.D.  
Clifford G. Wlodaver, M.D.

---

**INTERNAL MEDICINE**

W.W. Rucks, Jr., M.D.  
William S. Pugsley, M.D.  
Donald G. Preuss, M.D.  
Earl S. Elliott, Jr., M.D.  
Brian P. Levy, M.D.  
Charles D. Arnold, M.D.  
Richard H. Dykstra, M.D.

---

**OPHTHALMOLOGY**

James T. Quinlan, M.D.

---

**OBSTETRICS AND GYNECOLOGY**

John W. Records, M.D.  
Schales L. Atkinson, M.D.  
Roger D. Quinn, M.D.  
Thomas R. Bryant, M.D.  
Ronald E. Hempling, M.D.  
Laura L. Mackie, M.D.  
John D. Dachauer, M.D.

---

**ORTHOPEDIC SURGERY**

J. Patrick Livingston, M.D.  
Gene L. Muse, M.D.

---

**PEDIATRICS**

James E. Mayes, Jr., M.D.  
Hal B. Vorse, M.D.  
William J. Kruse, M.D.  
Gary D. McGann, M.D.  
Mickey E. Crittenden, M.D.  
Don L. Wilber, M.D.  
Charles A. (Tony) Leveridge, M.D.  
David H. Cheatham, M.D.

---

**PEDIATRIC NEUROLOGY**

Marc Hille, M.D.

---

**PULMONARY DISEASE**

William W. Cook, M.D.  
Mark S. Fixley, M.D.  
Steven R. Smith, M.D.

---

**RADIATION THERAPY**

Stephen E. Acker, M.D.

---

**RADIOLOGY**

Melvin C. Hicks, M.D.  
J. Kent Chesnut, M.D.  
Alan M. Effron, M.D.  
Howard G. Daniel, M.D.  
Robyn L. Birdwell, M.D.  
Carol V. Sheldon, M.D.  
Bert R. Carollo, M.D.

---

**RHEUMATOLOGY**

William T. Tatum, Jr., M.D.

---

**UROLOGY**

Donald D. Albers, M.D.  
William F. Barnes, M.D.  
Richard E. Herlihy, M.D.

---

**EXECUTIVE DIRECTOR**

A. Wayne Coventon, M.D.

---

**DIABETES  
MANAGEMENT  
CENTER**

Patient Education  
by Referral

---

**NUTRITION  
COUNSELING**

Patient Education  
by Referral

---

**ACCREDITED**

Accreditation Association  
for Ambulatory  
HealthCare, Inc.

# Oklahoma City Clinic



701 Northeast 10th Street  
Oklahoma City, Oklahoma 73104

*Multiple Specialty Clinic*



Telephone 271-2700

1-800-522-0224





# Let Us "Balance" Your Books

Some physicians think keeping business accounts in balance is a magic trick. But — like the gymnast on a balance beam — your office manager can keep your books in balance with a little computer equilibrium.

At Prodata, we know the right computer system can improve your cash flow and reduce office paperwork. Our system is the only one to offer **all** of the following:

- complete automation of office collections
- electronic processing of insurance claims
- patient recall and follow-up
- scheduling of appointments
- customized software packages for all specialties and every size of practice
- total on-site training, support and service
- lease/purchase available
- **a written buy-back guarantee.**

Prodata Medical Systems — the next best thing to an office manager with ten arms!

Let us "balance" your books.

TEXAS  
INSTRUMENTS 

**Prodata**  
**medical systems**

One Broadway Center 100 NW 63rd Suite 100  
Oklahoma City, OK 73116 (405) 840-0461

Endorsed by M.D. Physicians, Inc., as its sole recommended vendor for computer hardware and software.

# COPPER LAKE MANOR...

## THE ALTERNATIVE



**N**ot all patients need nursing home care. Yet, some patients are not able to fully care for themselves in their own homes.

COPPER LAKE MANOR offers an alternative.

COPPER LAKE MANOR, located at the Village at Copper Lake in Edmond, offers luxurious living for the semi-independent. Your patient will be able to live life to the fullest and still have the security and peace of mind that comes with having full time nursing care available.

### NURSING SERVICES PROVIDED

- Skilled Nursing
- Occupational and Physical Therapy
- Maintenance of Health Files
- Monitoring of Medications
- Speech Therapy
- Health and Fitness Assessments
- Periodic Blood Pressure and Heart Rate Checks
- Health Education Programs

### Other COPPER LAKE MANOR amenities:

- Spacious Efficiency, 1 and 2 Bedroom Apartments
- Complete Meal Service in a Beautiful Dining Area
- Weekly Maid Service
- 24 hour Security and Health Monitoring
- 6 Acre Lake Complete with Fountains, Ducks and a Lighted Walkway
- Transportation
- Beauty Salon
- Much, Much More

*There is an alternative to nursing home care — Copper Lake Manor*  
Models open now — Reserve your apartment today



1300 W. 15th in Edmond  
340-5311

Call for more information or  
come by for a tour today!



## EDITORIAL BOARD

MARK R. JOHNSON, MD  
*Editor-in-Chief*

HARRIS D. RILEY, JR, MD  
*Editor*

ROBERT G. TOMPKINS, MD  
*Editor*

## STAFF

DAVID BICKHAM  
*OSMA Executive Director*

M. MICHAEL SULZYCKI  
*Director of Communications*

SUSAN RECORDS HARRISON  
*Managing Editor*

# JOURNAL

OKLAHOMA STATE MEDICAL ASSOCIATION

MAY 1986

VOL. 79, No. 5

## EDITORIAL

- Storm Damage ..... 315  
MARK R. JOHNSON, MD

- President's Page ..... 316  
NORMAN L. DUNITZ, MD

## SCIENTIFIC

- Endoscopic Laser Therapy for Gastrointestinal  
Disorders — Update (First of four parts) ..... 317  
MARK H. MELLOW, MD

- Improvement in the Birth Weight Distribution  
Among White Newborns in a Community Hospital ..... 321  
SAMUEL SEPKOWITZ, MD

- The Noninvasive Vascular Laboratory — An Update  
Part III: Current Uses — Evaluation of the Venous  
System (Last of three parts) ..... 327  
M. ALEX JACOBS, MD, and THOMAS L. WHITSETT, MD

## NEWS ..... 333

Norman L. Dunitz, MD, becomes OSMA president . . . Executive director explains OSMA assessment . . . OU markets new cancer technology . . . Tort reform proponents go to the capitol . . . C. S. Lewis, Jr., MD, becomes ACP president . . . Doctors support Oklahoma Association of Medical Assistants . . . Residency training takes emotional toll . . . ACP wants limit on foreign grad funding . . . Intensive care being rationed?

## DEPARTMENTS

- |                    |               |     |
|--------------------|---------------|-----|
| State Department   | Index to Adv  | 372 |
| of Health          | Instructions  |     |
| In Memoriam        | for Authors   | 372 |
| Book Shop          | Auxiliary     | 373 |
| Miscellaneous Adv. | The Last Word | 374 |

The JOURNAL (ISSN 0030-1876) is the official publication of the Oklahoma State Medical Association and is published monthly under the direction of the OSMA Board of Trustees. Editorial office is at 601 Northwest Expressway, Oklahoma City, OK 73118. Printed by the Transcript Press, 222 East Eufaula Street, Norman, OK 73069. Second class postage paid at Oklahoma City, OK 73125.

Subscription to the JOURNAL is included in membership fees. Others subscriptions are \$10.00 per year (\$28.00 foreign). Back issues are \$3.00 per copy, subject to availability, or can be obtained on microfilm from University Microfilms International, 300 North Zeeb Road, Department PR, Ann Arbor, MI 48106.

The JOURNAL does not assume responsibility for opinions expressed by the authors. Products and services advertised in the JOURNAL are neither endorsed nor warrantied by the Oklahoma State Medical Association.

Copyright © 1986 by the Oklahoma State Medical Association.

POSTMASTERS: Send all change of address notices to 601 Northwest Expressway, Oklahoma City, OK 73118.

The JOURNAL of the Oklahoma State Medical Association (USPS 285-000)

Cover art direction by  
Graphic Art Center, Oklahoma City





# HOME ALWAYS HAS THE ADVANTAGE

**Y**ou know, there is nothing as comfortable as home — and with our home sweet home health care, we take your comfort very seriously.

BMC Care Advantage has a complete range of Medicare and private pay home health services. Call us for details.

It's to your advantage to think BMC Care Advantage. Call today. 948-8886.

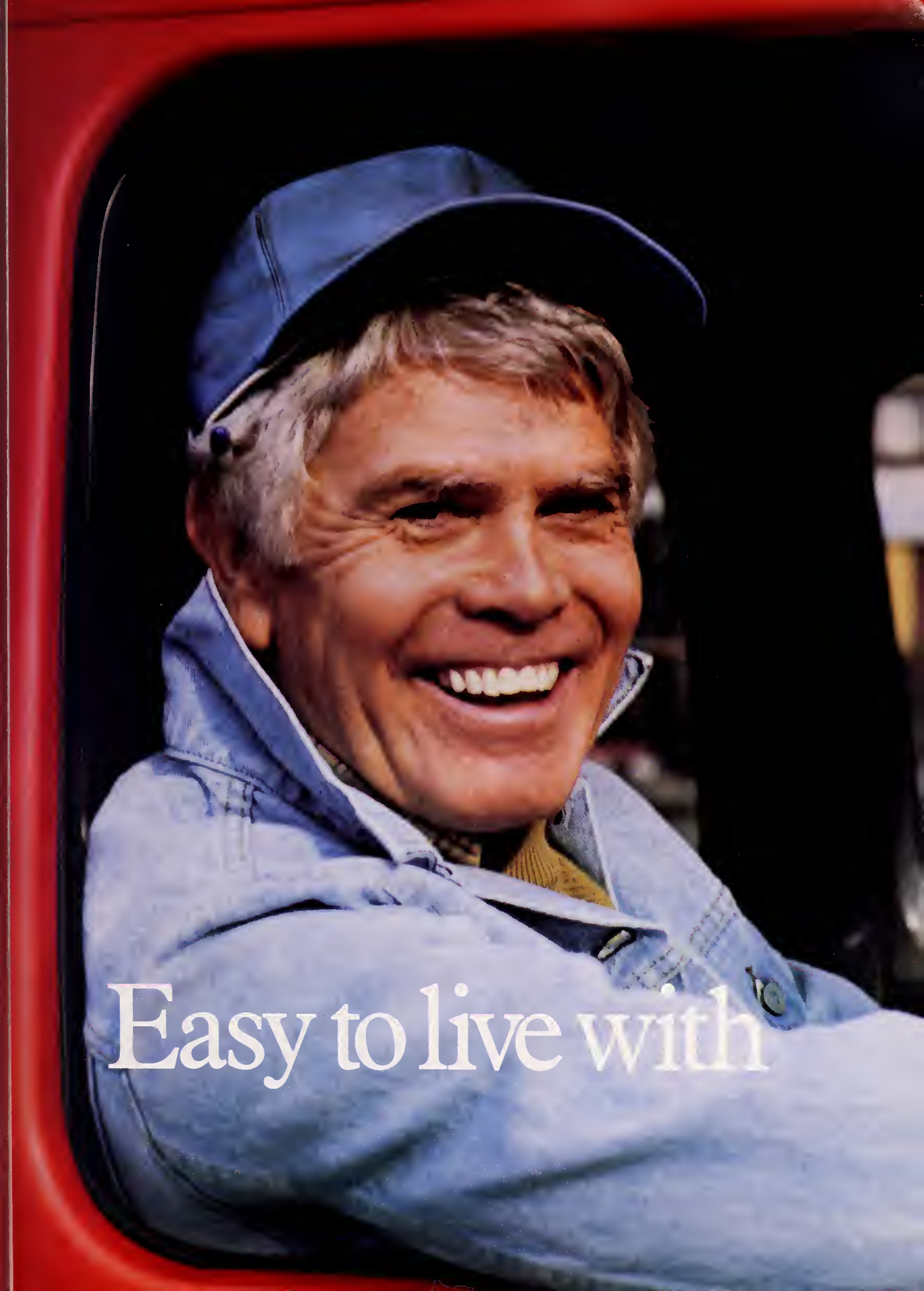


a medicare certified agency.

— SERVICES INCLUDE —

LICENSED NURSES (RN and LPN) • HOMEMAKER/CHORE SERVICE  
PHYSICAL THERAPISTS • OCCUPATIONAL THERAPISTS  
SPEECH THERAPISTS • SPECIALTY SERVICES

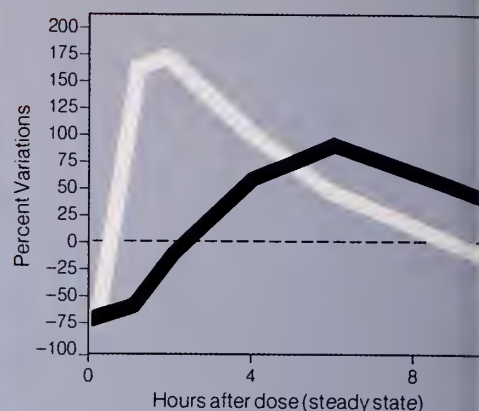
BMC CARE ADVANTAGE IS AN AFFILIATE OF BAPTIST MEDICAL CENTER OF OKLAHOMA



Easy to live with



## INDERAL LA and



- INDERAL LA avoids the sharp peaks seen with atenolol

# Blood pressure controlled.

## Smooth blood pressure control and well tolerated

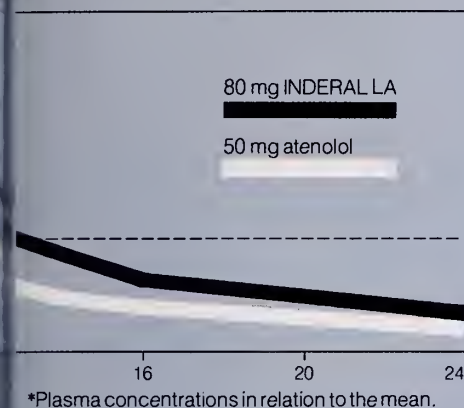
Once-daily INDERAL LA (propranolol HCl) keeps life simple for the patient. A single dose provides 24-hour blood pressure control. Convenient and well tolerated, INDERAL LA rarely interferes with everyday living. In fact, a recent study of 138 patients found a low incidence of side effects with INDERAL LA, which was not significantly different from that reported with metoprolol and atenolol.<sup>2</sup>

INDERAL LA should not be used in the presence of congestive heart failure, sinus bradycardia, cardiogenic shock, heart block greater than first degree, and bronchial asthma.

**Once-daily**  
**INDERAL<sup>®</sup> LA**  
(PROPRANOLOL HCl) **Long Acting Capsules**



atenolol over 24 hours\*<sup>1</sup>



- Smooth, consistent plasma drug levels over 24 hours
- Full, 24-hour blood pressure control with Inderal LA



# and feeling good.

## Added blood pressure control with the preferred diuretic

When more than one antihypertensive agent is needed, once-daily Inderide LA enhances patient compliance to improve long-term control. Patients receive all the benefits of controlled-release Inderal LA and standard-release hydrochlorothiazide (HCTZ), for comfortable morning diuresis. Not only does this regimen permit patients to follow normal daily routines, but HCTZ also produces less potassium wastage on a mg-for-mg basis than chlorthalidone.<sup>3,4</sup>

**Once-daily**  
**INDERIDE® LA**  
(PROPRANOLOL HCl [INDERAL® LA]  
/HYDROCHLOROTHIAZIDE)

*As with all fixed-combination antihypertensives, Inderide LA is not indicated for the initial treatment of hypertension.*

*Please turn page for brief summary of prescribing information.*

# Once-daily **INDERAL® LA** (PROPRANOLOL HCl) LONG ACTING CAPSULES



The appearance of these capsules is a registered trademark of Ayerst Laboratories

BRIEF SUMMARY (FOR FULL PRESCRIBING INFORMATION, SEE PACKAGE CIRCULARS)

**INDERAL® LA** Brand of PROPRANOLOL HYDROCHLORIDE (Long Acting Capsules)  
**INDERIDE® LA** Brand of PROPRANOLOL HYDROCHLORIDE (INDERAL® LA) and HYDROCHLOROTHIAZIDE (Long Acting Capsules)  
INDERAL LA AND IINDERIDE LA Capsules should not be considered simple mg-for-mg substitutes for IINDERAL and IINDERIDE Tablets. Please see package circulars

## CONTRAINDICATIONS

**Propranolol hydrochloride (INDERAL® LA):** Propranolol is contraindicated in 1) cardiogenic shock, 2) sinus bradycardia and greater than first degree block, 3) bronchial asthma, 4) congestive heart failure (see WARNINGS) unless the failure is secondary to a tachyarrhythmia treatable with propranolol.

**Hydrochlorothiazide:** Hydrochlorothiazide is contraindicated in patients with anuria or hypersensitivity to this or other sulfonamide-derived drugs.

## WARNINGS

**Propranolol hydrochloride (INDERAL® LA):** CARDIAC FAILURE: Sympathetic stimulation may be a vital component supporting circulatory function in patients with congestive heart failure, and its inhibition by beta blockade may precipitate more severe failure. Although beta blockers should be avoided in overt congestive heart failure, if necessary, they can be used with close follow-up in patients with a history of failure who are well compensated, and are receiving digitalis and diuretics. Beta-adrenergic blocking agents do not abolish the inotropic action of digitalis on heart muscle.

IN PATIENTS WITHOUT A HISTORY OF HEART FAILURE, continued use of beta blockers can, in some cases, lead to cardiac failure. Therefore, at the first sign or symptom of heart failure, the patient should be digitalized and/or treated with diuretics, and the response observed closely, or propranolol should be discontinued (gradually, if possible).

IN PATIENTS WITH ANGINA PECTORIS, there have been reports of exacerbation of angina and, in some cases, myocardial infarction following abrupt discontinuance of propranolol therapy. Therefore, when discontinuance of propranolol is planned the dosage should be gradually reduced and the patient carefully monitored. In addition, when propranolol is prescribed for angina pectoris, the patient should be cautioned against interruption or cessation of therapy without the physician's advice. If propranolol therapy is interrupted and exacerbation of angina occurs, it is usually advisable to reinstitute propranolol therapy and take other measures appropriate for the management of unstable angina pectoris. Since coronary artery disease may be unrecognized, it may be prudent to follow the above advice in patients considered at risk of having occult atherosclerotic heart disease who are given propranolol for other indications.

**THYROTOXICOSIS:** Beta blockade may mask certain clinical signs of hyperthyroidism. Therefore, abrupt withdrawal of propranolol may be followed by an exacerbation of symptoms of hyperthyroidism, including thyroid storm. Propranolol does not distort thyroid function tests.

IN PATIENTS WITH WOLFF-PARKINSON-WHITE SYNDROME, several cases have been reported in which, after propranolol, the tachycardia was replaced by a severe bradycardia requiring a demand pacemaker. In one case this resulted after an initial dose of 5 mg propranolol.

**MAJOR SURGERY:** The necessity or desirability of withdrawal of beta blocking therapy prior to major surgery is controversial. It should be noted, however, that the impaired ability of the heart to respond to reflex adrenergic stimuli may augment the risks of general anesthesia and surgical procedures.

**Nonallergic Bronchospasm (eg, chronic bronchitis, emphysema)—PATIENTS WITH BRONCHOSPASTIC DISEASES SHOULD, IN GENERAL, NOT RECEIVE BETA BLOCKERS.** Inderal should be administered with caution, since it may block bronchodilation produced by endogenous and exogenous catecholamine stimulation of beta receptors.

**DIABETES AND HYPOGLYCEMIA:** Beta adrenergic blockade may prevent the appearance of certain premonitory signs and symptoms (pulse rate and pressure changes) of acute hypoglycemia in labile insulin-dependent diabetes. In these patients, it may be more difficult to adjust the dosage of insulin. Hypoglycemic attacks may be accompanied by a precipitous elevation of blood pressure.

**Hydrochlorothiazide:** Thiazides should be used with caution in severe renal disease. In patients with renal disease, thiazides may precipitate azotemia. In patients with impaired renal function, cumulative effects of the drug may develop.

Thiazides should also be used with caution in patients with impaired hepatic function or progressive liver disease, since minor alterations of fluid and electrolyte balance may precipitate hepatic coma.

Thiazides may add to or potentiate the action of other antihypertensive drugs. Potentiation occurs with ganglionic or peripheral adrenergic-blocking drugs.

Sensitivity reactions may occur in patients with a history of allergy or bronchial asthma. The possibility of exacerbation or activation of systemic lupus erythematosus has been reported.

## PRECAUTIONS

**Propranolol hydrochloride (INDERAL® LA):** GENERAL: Propranolol should be used with caution in patients with impaired hepatic or renal function. Propranolol is not indicated for the treatment of hypertensive emergencies.

Beta adrenoceptor blockade can cause reduction of intraocular pressure. Patients should be told that propranolol may interfere with the glaucoma screening test. Withdrawal may lead to a return of increased intraocular pressure.

**CLINICAL LABORATORY TESTS:** Elevated blood urea levels in patients with severe heart disease, elevated serum transaminase, alkaline phosphatase, lactate dehydrogenase.

**DRUG INTERACTIONS:** Patients receiving catecholamine-depleting drugs, such as reserpine should be closely observed if propranolol is administered. The added catecholamine-blocking action may produce an excessive reduction of resting sympathetic nervous activity, which may result in hypotension, marked bradycardia, vertigo, syncopal attacks, or orthostatic hypotension.

**CARCINOGENESIS, MUTAGENESIS, IMPAIRMENT OF FERTILITY:** Long term studies in animals have been conducted to evaluate toxic effects and carcinogenic potential. In 18 month studies, in both rats and mice, employing doses up to 150 mg/kg/day, there was no evidence of significant drug-induced toxicity. There were no drug-related tumorigenic effects at any of the dosage levels. Reproductive studies in animals did not show any impairment of fertility that was attributable to the drug.

**PREGNANCY:** Pregnancy Category C. Propranolol has been shown to be embryotoxic in animal studies at doses about 10 times greater than the maximal recommended human dose. There are no adequate and well-controlled studies in pregnant women. Propranolol should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus.

# Once-daily **INDERIDE® LA**

Each capsule contains propranolol HCl (INDERAL® LA), 80 mg, 120 mg, or 160 mg, and hydrochlorothiazide, 50 mg



The appearance of these capsules is a registered trademark of Ayerst Laboratories.

**NURSING MOTHERS:** Propranolol is excreted in human milk. Caution should be exercised when propranolol is administered to a nursing mother.

**PEDIATRIC USE:** Safety and effectiveness in children have not been established.

**Hydrochlorothiazide:** GENERAL: Periodic determination of serum electrolytes to detect possible electrolyte imbalance should be performed at appropriate intervals.

All patients receiving thiazide therapy should be observed for clinical signs of fluid or electrolyte imbalance, namely Hyponatremia, hypochloremic alkalosis, and hypokalemia. Serum and urine electrolyte determinations are particularly important when the patient is vomiting excessively or receiving parenteral fluids. Medication such as digitalis may also influence serum electrolytes. Warning signs irrespective of cause are Dryness of mouth, thirst, weakness, lethargy, drowsiness, restlessness, muscle pains or cramps, muscular fatigue, hypotension, oliguria, tachycardia, and gastrointestinal disturbances such as nausea and vomiting.

Hypokalemia may develop, especially with brisk diuresis, when severe cirrhosis is present, or during concomitant use of corticosteroids or ACTH.

Interference with adequate oral electrolyte intake will also contribute to hypokalemia. Hypokalemia can sensitize or exaggerate the response of the heart to the toxic effect of digitalis (eg, increased ventricular irritability). Hypokalemia may be avoided or treated by use of potassium supplements, such as foods with a high potassium content.

Any chloride deficit is generally mild and usually does not require specific treatment, except under extraordinary circumstances (as in liver or renal disease). Dilutional hyponatremia may occur in edematous patients in hot weather; appropriate therapy is water restriction, rather than administration of salt, except in rare instances when the hyponatremia is life-threatening. In actual salt depletion, appropriate replacement is the therapy of choice.

Hyperuricemia may occur or frank gout may be precipitated in certain patients receiving thiazide therapy.

Insulin requirements in diabetic patients may be increased, decreased, or unchanged. Diabetes mellitus which has been latent may become manifest during thiazide administration.

If progressive renal impairment becomes evident, consider withholding or discontinuing diuretic therapy.

Thiazides may decrease serum PBI levels without signs of thyroid disturbance.

Calcium excretion is decreased by thiazides. Pathologic changes in the parathyroid gland with hypercalcemia and hypophosphatemia have been observed in a few patients on prolonged thiazide therapy. The common complications of hyperparathyroidism, such as renal lithiasis, bone resorption, and peptic ulceration, have not been seen. Thiazides should be discontinued before carrying out tests for parathyroid function.

**DRUG INTERACTIONS:** Thiazide drugs may increase the responsiveness to tubocurarine.

The antihypertensive effects of thiazides may be enhanced in the postsympathectomy patient. Thiazides may decrease arterial responsiveness to norepinephrine. This diminution is not sufficient to preclude effectiveness of the pressor agent for therapeutic use.

**PREGNANCY:** Pregnancy Category C. Thiazides cross the placental barrier and appear in cord blood. The use of thiazides in pregnancy requires that the anticipated benefit be weighed against possible hazards to the fetus. These hazards include fetal or neonatal jaundice, thrombocytopenia, and possibly other adverse reactions which have occurred in the adult.

**NURSING MOTHERS:** Thiazides appear in human milk. If use of the drug is deemed essential, the patient should stop nursing.

**PEDIATRIC USE:** Safety and effectiveness in children have not been established.

## ADVERSE REACTIONS

**Propranolol hydrochloride (INDERAL® LA):** Most adverse effects have been mild and transient and have rarely required the withdrawal of therapy.

**Cardiovascular:** Bradycardia, congestive heart failure; intensification of AV block; hypotension, paresthesia of hands; thrombocytopenic purpura, arterial insufficiency, usually of the Raynaud type.

**Central Nervous System:** Lightheadedness, mental depression manifested by insomnia, lassitude, weakness, fatigue, reversible mental depression progressing to cataplexy, visual disturbances, hallucinations, an acute reversible syndrome characterized by disorientation for time and place, short term memory loss, emotional lability, slightly clouded sensorium, and decreased performance on neuropsychometric tests.

**Gastrointestinal:** Nausea, vomiting, epigastric distress, abdominal cramping, diarrhea, constipation, mesenteric arterial thrombosis, ischemic colitis.

**Allergic:** Pharyngitis and agranulocytosis, erythematous rash, fever combined with aching and sore throat, laryngospasm and respiratory distress.

**Respiratory:** Bronchospasm.

**Hematologic:** Agranulocytosis; nonthrombocytopenic purpura, thrombocytopenic purpura.

**Auto-Immune:** In extremely rare instances, systemic lupus erythematosus has been reported. **Miscellaneous:** Alopecia, LE-like reactions, psoriasis-like rashes, dry eyes, male impotence, and Peyronie's disease have been reported rarely. Oculomucocutaneous reactions involving the skin, serous membranes, and conjunctivae reported for a beta blocker (practolol) have not been associated with propranolol.

**Hydrochlorothiazide:**

**Gastrointestinal:** Anorexia, gastric irritation, nausea, vomiting, cramping, diarrhea, constipation, jaundice (intrahepatic cholestatic jaundice), pancreatitis, sialadenitis.

**Central Nervous System:** Dizziness, vertigo, paresthesias, headache, xanthopsia.

**Hematologic:** Leukopenia, agranulocytosis, thrombocytopenia, aplastic anemia.

**Cardiovascular:** Orthostatic hypotension (may be aggravated by alcohol, barbiturates, or narcotics).

**Hypersensitivity:** Purpura, photosensitivity, rash, urticaria, necrotizing angitis (vasculitis, cutaneous vasculitis), fever, respiratory distress, including pneumonitis, anaphylactic reactions.

**Other:** Hyperglycemia, glycosuria, hyperuricemia, muscle spasm, weakness, restlessness, transient blurred vision.

Whenever adverse reactions are moderate or severe, thiazide dosage should be reduced or therapy withdrawn.

\*The appearance of these capsules is a registered trademark of Ayerst Laboratories.

## REFERENCES

1. Data on file, Ayerst Laboratories.
2. Ravid M, Lang R, Jutrin I: The relative antihypertensive potency of propranolol, oxprenolol, atenolol, and metoprolol given once daily. *Arch Intern Med* 1985;145:1321-1323.
3. Sumiyi L, Vivian AS, Frisof KB, et al: Potassium loss associated with hydrochlorothiazide versus chlorthalidone. *Clin Ther* 1981;4:308-320.
4. Ram CVS, Garrett BN, Kaplan NM: Moderate sodium restriction and various diuretics in the treatment of hypertension. *Arch Intern Med* 1981;141:1015-1019.

5593/486

**Ayerst**

AYERST LABORATORIES  
New York, NY 10017

© 1986 Ayerst Laboratories



# What's Wrong With This Picture?

You would never let an oil field roughneck operate on your patient. As a physician, it makes even less sense for you to moonlight as an office manager.

Today, fee schedules and insurance coding requirements are updated more rapidly than medical procedures. One company, Professional Office Management, has made it

their full-time responsibility to keep up with these changes. Since 1980, POM has been the specialist on office work, enabling doctors to concentrate on what they do best—practice medicine. Before you invest in additional staff or a computer, talk to the experts.

**POM—Why have two specialties?**

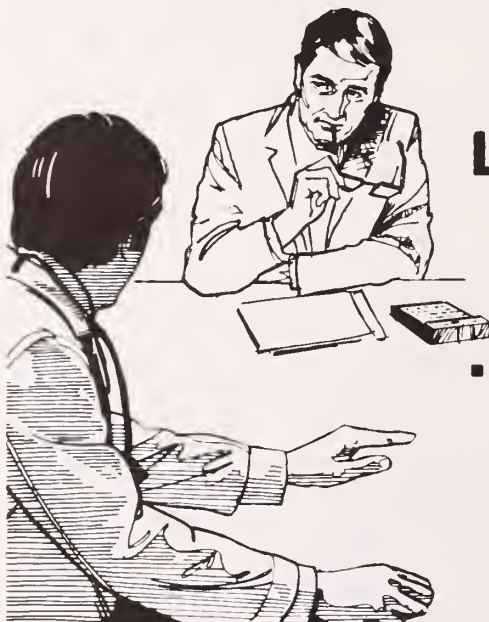


**pom**

**Professional Office Management**

1110 N. Classen Blvd. Suite 100 • Oklahoma City, OK 73106 • (405) 232-7059





## Let's talk about your commitment ... and ours.

***You have made  
a commitment  
we understand.***

Your personal commitment to provide the best possible medical care is your foundation for those you serve.

The long years of preparation, education, working hours, and attentiveness, are behind . . . and ahead of you.

You are at home with medical decisions and thinking clearly during critical times. You deserve to be served by folks who make the same professional commitments in their field as you in your own.

Your own financial planning is now more important than ever. You know that government regulation, insurance costs, insurance payment controls, and the general expenses related to operating your practice changes everyday.

Today, a sound financial plan, backed by a financial institution with a solid commitment to the medical industry, positions you to accomplish your goals.

Whether you are starting your practice, expanding it, buying equipment, a home, or any other financial consideration, our commitment is to present you with a package of financial alternatives you will be pleased with.

Your commitment is important to us. Your financial needs are important as well. We are anxious to discuss your needs now.

Call anytime. We are committed to serve Oklahoma Medical Professionals.

*Stillwater National Bank business and real estate loans:*

SIXTH & MAIN, STILLWATER, OK 74074 .....(405) 372-2230

1616 E. 19TH, SUITE 203, EDMOND, OK 73034 .....(405) 340-1810

ELMCREST PARK OFFICE, 2700 E. 51st, SUITE 402, TULSA, OK 74105 (918) 742-8076

(405) 372-2230



**STILLWATER NATIONAL BANK AND TRUST COMPANY**

MEMBER F.D.I.C.

SIXTH AND MAIN • STILLWATER, OKLAHOMA

# Good news about cancer.

Oklahoma has important ways to help doctors and patients find cancer, and fight it. The Oklahoma Cancer Institute is a new major source of comprehensive cancer care for Oklahoma.

In the coming months we'll be sponsoring an intense program of cancer prevention and detection. We hope that you will join us in our efforts, and encourage your patients and colleagues to join us, too.

Together we can help thousands of Oklahoma families take the first step toward beating the odds.

For more information:

Call The Oklahoma Cancer Institute  
1-405-755-6824

or The Oklahoma Cancer Information Service, toll free, at 1-800-4-CANCER.

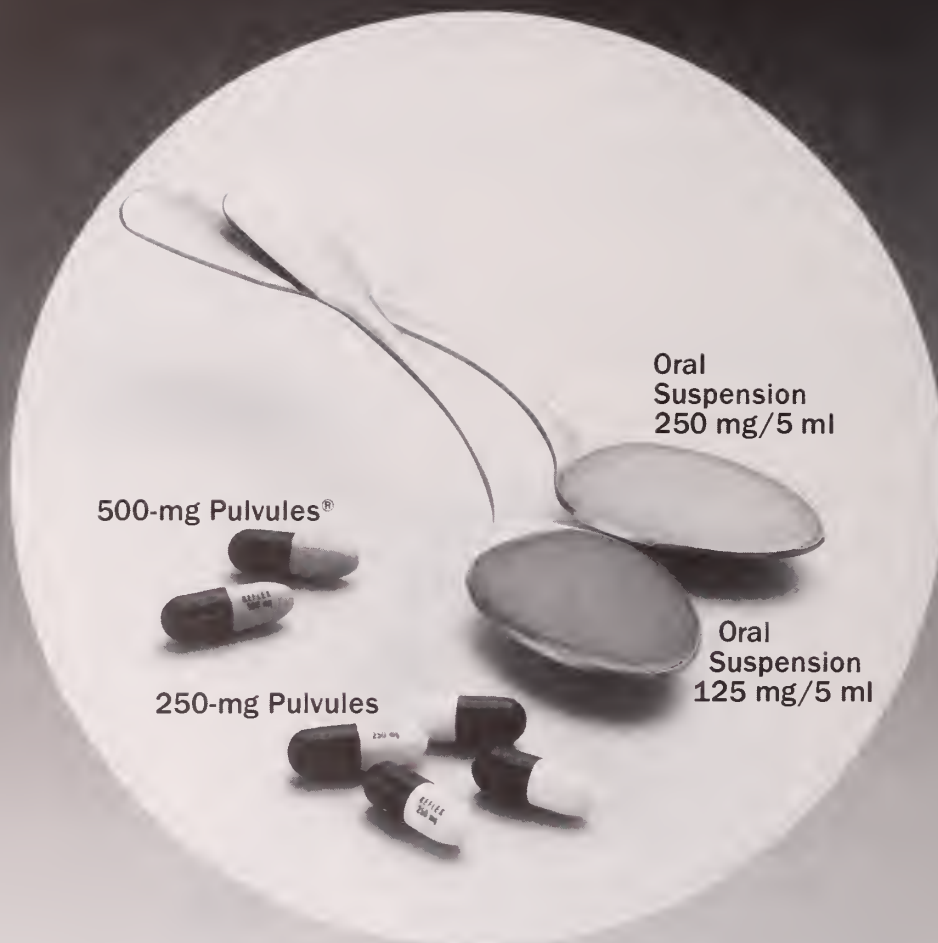
**Oklahoma Cancer Institute**  
Comprehensive Cancer Care for Oklahoma

Memorial Professional Building  
Broadway Extension at Memorial Road  
Oklahoma City, OK 73114

An Affiliate of **HCA** Hospital Corporation of America



# Easy To Take



**Keflex<sup>®</sup>**  
**cephalexin**

Additional information  
available to the profession  
on request.



420113

Dista Products Company  
Division of Eli Lilly and Company  
Indianapolis, Indiana 46285  
Mfd. by Eli Lilly Industries, Inc.  
Carolina, Puerto Rico 00630



# Motrin<sup>®</sup> 800 TABLETS mg ibuprofen



Extra strength  
Convenience  
Economy

Upjohn



A Century  
of Caring  
1886-1986

**“High  
blood pressure  
should be a  
red flag to  
screen for  
cholesterol...”<sup>1</sup>**





**If your patients have hypertension, they probably have high cholesterol too.**

The Framingham Heart Study<sup>2</sup> showed that over two thirds of the 35 and older population in that study with systolic blood pressures over 145 mmHg also had serum cholesterol levels of 225 mg/dL or more, and 46% had levels above 250 mg/dL.

While many clinical laboratories still report 250 mg/dL as "normal" cholesterol, the NIH Consensus Development Conference Statement on Cholesterol and Heart Disease<sup>3</sup> stated that any level above 220 mg/dL is associated with a significantly increased risk of coronary heart disease.

**You need to know, because high cholesterol parallels high blood pressure as a CHD risk factor.**

Epidemiological studies and large-scale prevention trials have indicated that as with blood pressure, serum cholesterol levels are proportionately related to CHD risk.

Specifically, "...for every 10 mmHg rise in pressure, there appears to be about a 30% rise in cardiovascular risk."<sup>4</sup> "...for every one percent you go up the American cholesterol scale, your subsequent rate of heart attack rises two to three percent."<sup>5</sup>

And although the specific impact on CHD has not been determined, we know that many of the principal agents used to lower blood pressure actually increase cholesterol.

**Wytensin® lowers blood pressure effectively without raising cholesterol.**

While Wytensin is not a cholesterol-lowering agent and is not indicated for the treatment of hyperlipidemia, in controlled clinical trials<sup>6</sup> it caused a slight, sustained decrease in total cholesterol without reducing the HDL fraction or altering serum triglycerides.

At the same time, Wytensin lowered blood pressure as effectively as hydrochlorothiazide, propranolol, clonidine or methyldopa. Drowsiness and/or dry mouth, the most frequent side effects noted with Wytensin, usually diminish or disappear over time. In fact, in double-blind studies to date, discontinuance of therapy for all side effects occurred in about 13% of patients.

**Wytensin.**  
(guanabenz acetate)

**Antihypertensive therapy that does not increase cholesterol**

See important information on following page.

**References:** 1. Glueck CJ: Remarks in the symposium, *Blood Pressure, Cholesterol and Coronary Heart Disease*, Washington, D.C., March 31, 1985. 2. *The Framingham Study, An epidemiological investigation of cardiovascular disease*, Section 28, U.S. Dept. of Health, Education, and Welfare. 3. National Institutes of Health Consensus Development Conference Statement, 1984: Vol 5, No 7, p 4. 4. Chobanian AV: The influence of hypertension and other hemodynamic factors in atherogenesis. *Progress in Cardiovascular Diseases*, XXVI (3): 177, Nov/Dec, 1983. 5. Castelli WP: Remarks in the symposium, *Blood Pressure, Cholesterol and Coronary Heart Disease*, Washington, D.C., March 31, 1985. 6. Data on file, Wyeth Laboratories.



# Wytensin<sup>®</sup>

(guanabenz acetate)

Antihypertensive therapy  
that does not increase cholesterol

## Brief Summary

Before prescribing, consult the complete package circular.

**Indications and Usage:** Treatment of hypertension, alone or in combination with a thiazide diuretic.

**Contraindication:** Known sensitivity to the drug.

**Precautions:** 1. Sedation. Causes sedation or drowsiness in a large fraction of patients. When used with centrally active depressants, e.g., phenothiazines, barbiturates and benzodiazepines, consider potential for additive sedative effects. 2. Patients with vascular insufficiency. Like other antihypertensives use with caution in severe coronary insufficiency, recent myocardial infarction, cerebrovascular disease, or severe hepatic or renal failure. 3. Rebound. Sudden cessation of therapy with central alpha agonists like Wytensin may rarely result in "overshoot" hypertension and more commonly produces increase in serum catecholamines and subjective symptomatology.

**INFORMATION FOR PATIENTS:** Advise patients on Wytensin to exercise caution when operating dangerous machinery or motor vehicles until it is determined they do not become drowsy or dizzy. Warn patients that tolerance for alcohol and other CNS depressants may be diminished. Advise patients not to discontinue therapy abruptly.

**LAB TESTS:** In clinical trials, no clinically significant lab test abnormalities were identified during acute or chronic therapy. Tests included CBC, urinalysis, electrolytes, SGOT, bilirubin, alkaline phosphatase, uric acid, BUN, creatinine, glucose, calcium, phosphorus, total protein, and Coombs' test. During long-term use there was small decrease in serum cholesterol and total triglycerides without change in high density lipoprotein fraction. In rare instances occasional nonprogressive increase in liver enzymes was observed, but no clinical evidence of hepatic disease.

**DRUG INTERACTIONS:** Wytensin was not demonstrated to cause drug interactions when given with other drugs, e.g., digitalis, diuretics, analgesics, anxiolytics, and antiinflammatory or anti-infective agents, in clinical trials. However, potential for increased sedation when given concomitantly with CNS depressants should be noted.

**DRUG/LAB TEST INTERACTIONS:** No lab test abnormalities were identified with Wytensin use.

**CARCINOGENESIS, MUTAGENESIS, IMPAIRMENT OF FERTILITY:** No evidence of carcinogenic potential emerged in rats during a two-year oral study with Wytensin at up to 9.5 mg/kg/day, i.e., about 10 times maximum recommended human dose. In the Salmonella/microsome mutagenicity (Ames) test system, Wytensin at 200-500 mcg/plate or at 50-500 mcg/ml in suspension gave dose-related increases in number of mutants in one (TA 1537) of five *Salmonella typhimurium* strains with or without inclusion of rat liver microsomes. No mutagenic activity was seen at doses up to those which inhibit growth in the eukaryotic microorganism, *Schizosaccharomyces pombe*, or in Chinese hamster ovary cells at doses up to those lethal to the cells in culture. In another eukaryotic system, *Saccharomyces cerevisiae*, Wytensin produced no activity in an assay measuring induction of repairable DNA damage. Reproductive studies showed a decreased pregnancy rate in rats given high oral doses (9.6 mg/kg), suggesting impairment of fertility. Fertility of treated males (9.6 mg/kg) may also have been affected, as suggested by decreased pregnancy rate of mates, even though females received drug only during last third of pregnancy.

**PREGNANCY:** Pregnancy Category C. WYTENSIN<sup>®</sup> MAY HAVE ADVERSE EFFECTS ON FETUS WHEN ADMINISTERED TO PREGNANT WOMEN. A teratology study in mice indicated possible increase in skeletal abnormalities when Wytensin is given orally at doses 5 to 6 times maximum recommended human dose of 10 mg/kg. These abnormalities, principally costal and vertebral, were not noted in similar studies in rats and rabbits. However, increased fetal loss has been observed after oral Wytensin given to pregnant rats (14 mg/kg) and rabbits (20 mg/kg). Reproductive studies in rats have shown slightly decreased live-birth indices, decreased fetal survival rate, and decreased pup body weight at oral doses of 6.4 and 9.6 mg/kg. There are no adequate, well-controlled studies in pregnant women. Wytensin should be used during pregnancy only if potential benefit justifies potential risk to fetus.

**NURSING MOTHERS:** Because no information is available on Wytensin excretion in human milk, it should not be given to nursing mothers.

**PEDIATRIC USE:** Safety and effectiveness in children less than 12 years of age have not been demonstrated; use in this age group cannot be recommended.

**Adverse Reactions:** Incidence of adverse effects was ascertained from controlled clinical studies in U.S. and is based on data from 859 patients on Wytensin for up to 3 years. There is some evidence that side effects are dose related. Following table shows incidence of adverse effects in at least 5% of patients in study comparing Wytensin to placebo, at starting dose of 8 mg b.i.d.

Adverse Effect	Placebo (%) n = 102	Wytensin (%) n = 109
Dry mouth	7	28
Drowsiness or sedation	12	39
Dizziness	7	17
Weakness	7	10
Headache	6	5

In other controlled clinical trials at starting dose of 16 mg/day in 476 patients, incidence of dry mouth was slightly higher (38%) and dizziness was slightly lower (12%), but incidence of most frequent adverse effects was similar to placebo-controlled trial. Although these side effects were not serious, they led to discontinuation of treatment about 15% of the time. In more recent studies using an initial dose of 8 mg/day in 274 patients, incidence of drowsiness or sedation was lower, about 20%. Other adverse effects reported during clinical trials but not clearly distinguishable from placebo effects and occurring with frequency of 3% or less: Cardiovascular—chest pain, edema, arrhythmias, palpitations. Gastrointestinal—nausea, epigastric pain, diarrhea, vomiting, constipation, abdominal discomfort. Central nervous system—anxiety, ataxia, depression, sleep disturbances. ENT disorders—nasal congestion. Eye disorders—blurring of vision. Musculoskeletal—aches in extremities, muscle aches. Respiratory—dyspnea. Dermatologic—rash, pruritus. Urogenital—urinary frequency, disturbances of sexual function. Other—gynecomastia, taste disorders.

**Drug Abuse and Dependence:** No dependence or abuse has been reported.

**Overdosage:** Accidental ingestion caused hypotension, somnolence, lethargy, irritability, miosis, and bradycardia in two children aged one and three years. Gastric lavage and pressor substances, fluids, and oral activated charcoal resulted in complete and uneventful recovery within 12 hours in both. Since experience with accidental overdosage is limited, suggested treatment is mainly supportive while drug is being eliminated and until patient is no longer symptomatic. Vital signs and fluid balance should be carefully monitored. Adequate airway should be maintained and, if indicated, assisted respiration instituted. No data are available on Wytensin dialyzability.

**Dosage and Administration:** Individualize dosage. A starting dose of 4 mg b.i.d. is recommended, whether used alone or with a thiazide diuretic. Dosage may be increased in increments of 4 to 8 mg/day every one to two weeks, depending on response. Maximum dose studied has been 32 mg b.i.d., but doses this high are rarely needed.

**How Supplied:** (guanabenz acetate) Tablets, 4 mg, bottles of 100 and 500; 8 mg and 16 mg, bottles of 100. Revised 2/14/85

Wyeth Laboratories  
Philadelphia, Pa. 19101



©1984, Wyeth Laboratories



## TWELVE IMPECCABLE EXCUSES FOR NOT GIVING BLOOD.

1. I think I have lumbago.
2. I'm type Z negative.
3. I'm on the grapefruit diet.
4. I gave six months ago.
5. I just got back from Monaco.
6. The lines are thirteen blocks long.
7. My mother won't let me.
8. I didn't sign up.
9. I'm going out of town.
10. Asthma runs in my family.
11. I forgot to eat this morning.
12. I'm allergic to flowering magnolia.



Each one's a doozy,  
but we're hoping you  
won't use any of them.  
Give blood through the  
American Red Cross.  
Please, don't chicken out.

**EXCUSES DON'T SAVE LIVES.  
BLOOD DOES.**

American  
Red Cross





## Public Auction

June 14, 1986  
Saturday

For complete catalog and credit information  
contact:

**WINDY MEADOW FARM**

24401 North May Ave., Edmond, OK 73034  
Tel. 405/341-3891

**Schedule of events:**

Previews of Sale Horses:

Saturday, May 24, 1986, 10:00 AM

Saturday, May 31, 1986, 10:00 AM

Saturday, June 7, 1986, 10:00 AM

Friday, June 13, 1986, 2:00 PM

Open barn, Saturday, June 14, 1986, 10:00 AM to  
12:00 Noon.

Picnic on Grounds, Saturday, June 14, 1986,  
12:00 Noon to 1:30 PM Sale Time

Noted for his superb disposition and intelligence, the Arabian horse is a horse for the entire family to enjoy. Owners of Arabians appreciate their versatility as riding horses and show animals as well as their investment potential.

At Windy Meadow Farm, we continue to

breed Arabian horses of beauty and charisma combined with a temperament to suit the amateur horseman.

We invite you to visit the farm to see for yourself why the Arabian horse is not only a work of art but a delight for the whole family.

---

# WINDY MEADOW FARMS

---

OF EDMOND, OKLAHOMA & L'ESPRIT, KENTUCKY

---

North May Avenue at Waterloo Road ■ 405 / 341-3891

# She wants to go home . . .



## And she can with Allied Nursing Care.

You demand quality service for your patients and Allied Nursing Care provides the best care, anywhere in Oklahoma.

We are prepared to meet your needs for high quality home health care with a full range of services. Our health care professionals follow your treatment plans for continuity of care. You can depend on accurate documentation and communication regarding your patient's progress.

**Allied Nursing Care is ready to serve . . . when she wants to go home.**



5001 N. Pennsylvania Ave.  
Suite 101  
Oklahoma City, Oklahoma 73112  
(405) 848-1234



## Storm Damage

We continue to be bombarded with facts, figures, and statistics which document the continuing rise in the cost of health care in our nation. In spite of the fact that "health care" has never been defined, its cost is lamented and bemoaned in daily citations by the news media. Headlines in periodicals, talking heads on television screens, and the faces of celebrities staring at us from junk mail contribute to the public awareness of the problem, undefined though it may be.

A favorite tactic of these alarmist critics is to cite horrible examples of individual patients whose bills from doctors and hospitals ran into six-figure sums, forcing them to sell their homes and bankrupt their heirs. Then, of course, accusing fingers are pointed at doctors, hospitals, and drug companies as detailed, itemized statements are displayed.

All of this is, in a sense, understandable and justified. For those of us who provide medical care there is nothing mysterious about the high and rising costs of health care or the relevant public outcry.

There is, however, an abiding mystery in one area of health care that occupies a prominent position of public concern about costs. This is in the area of providing care for the hopelessly ill or hopelessly disabled patient.

Great emotional storms are created by the media when a judge decrees that a plug will or will not be pulled, that a vegetating human form will or will not be nourished, that some potentially beneficial treatment or surgery will be carried out irrespective of medical advice or the expressed wishes of parents and guardians.

Such storms invariably feed on the energy of controversy and rarely, if ever, present the true facts of the case at issue. Pure, raw emotionalism is pitted against prudent logic and reason and, too often, prevails. The storm subsides gradually. The controversy fades from the news, and the adversaries disperse.

Strangely, there is never an announcement of the cost of the storm — no estimates, no assessments, no claim of disaster, no petition for relief.

Considering the magnitude of the public protests concerning the costs of health care, it is quite mysterious that the costs of treating the hopelessly ill are never mentioned, never predicted, never enumerated, never announced. Case after case is publicized, debated, settled, and resolved with never a word about costs, what they will be, or even who will pay them. Will they amount to one million dollars? Three million? Ten million?

The actual costs are surely known. All the financial facts are readily available. Every decision in every case carries a price tag. Detailed, itemized bills can be presented, but never are. Even as new storms erupt, new controversies develop, new cases of "deplorable" circumstances are taken up by the public concern, no voice is heard pleading for reason.

No one seems even curious about the damages done by previous storms.

I wonder why.

—MRJ

This month's issue marks the first time that I will be communicating with you, the members of the Oklahoma State Medical Association, as your president. I must thank all of you for the trust and confidence that you have placed in me in allowing me to serve you in this capacity. I only hope that this confidence and trust will not be disappointing.



We are blessed with an outstanding professional staff in our central office. As a result, many of the things that we take for granted are handled quite efficiently and effectively by this very finely tuned staff under Mr David Bickham's direction. Each of you should, at one time or another, spend a short time in our OSMA offices in Oklahoma City so that you can better appreciate the myriad of details and functions that our state organization carries out in our behalf.

For several years now, it seems that the medical profession has been buffeted by pressures from all types of sources creating problems that just a few years ago did not really exist. This situation continues to be present and there is no sign of its ablation in the near future.

Right now, probably the tort reform problem is commanding our greatest attention and resources. Accomplishing some type of meaningful reform that will be reflected in less stresses upon our physicians and better relationships with our patients is going to be quite difficult, particularly in this state of Oklahoma. There are many reasons for this, but suffice it to say that so far we have accomplished very little

to aid us in this plight. This coming year has been dedicated, as you know, with the recent \$150.00 assessment, to try to accomplish some relief in this area. What its outcome will be, I do not know, but there are certainly sympathies afoot throughout the land, including our state, and if we can ever overcome the self-interests of the trial attorney association in Oklahoma, something effective and constructive may yet be done.

Of course, the other social problems, such as alternate delivery systems, Medicare control, PROs, and things of this type, continue to plague us and to control our lives and our destinies. I will try to represent the OSMA in the manner that each of you would like, and hopefully with some degree of success. I hope that if there is any criticism, recommendation, or suggestion that you may have, that you will not hesitate to contact me, for I assure you these points will be listened to, evaluated, and hopefully consummated.

Let us all hope that this coming year will see solutions to some of our pressing problems. There will be much work for all of us, and I am sure I can count on your full cooperation.

Sincerely,

A handwritten signature in dark ink that reads "Norman L. Dunitz, MD." The signature is written in a cursive, flowing style.

Norman L. Dunitz, MD

# Endoscopic Laser Therapy for Gastrointestinal Disorders — Update

(First of four parts)

MARK H. MELLOW, MD

**This series of articles will provide an update on an area of rapidly expanding technology, with increasing applicability to patient care — endoscopic laser therapy in gastrointestinal disorders.**

Laser use, while unheard of a few decades ago, is now commonplace in a wide variety of medical and nonmedical areas. Its first application in medicine was in the field of ophthalmology, approximately 20 years ago. Laser use then spread rapidly to dermatology, otolaryngology, neurosurgery, and gynecology. We in gastroenterology came to recognize the clinical utility of lasers a bit later than some of our colleagues. While occurring at not quite the speed of light, advances in laser use in gastroenterology have occurred quite rapidly since the first patients were treated in the mid-1970s. This article reviews the therapeutic applications of lasers in gastrointestinal diseases.

## Basic Physical Principles of Lasers

The word *laser* is an acronym for *light amplification by stimulated emission of radiation*. The basic principle of lasers as used in medicine today involves the conversion of light energy to heat energy. In that regard one might liken the laser to a candle. Lasers differ from candles, light bulbs, and other forms of light energy in two major areas: (1) Lasers emit monochromatic light — that is, a light confined to a very narrow range of the optical spectrum. Thus, it

will have a very specific interaction with its target tissue. (2) Laser light is intense and highly directional, allowing it to be focused on a very specific target.

When lasers hit a target tissue, the laser energy can be either absorbed or scattered. Scattering may occur laterally, backwards, or forwards — the forward scattering accounting for penetration of the laser deeper into the target tissue. In biological tissues, it is the laser's interaction with the major components, namely water and blood, that determines its individual absorption and penetration characteristics.

The three main types of lasers in medical use today are the CO<sub>2</sub>, argon, and neodymium-YAG. Energy from the CO<sub>2</sub> laser is almost completely absorbed by water. Since water is by far the major component of biologic tissue, CO<sub>2</sub> laser energy will be absorbed at or near the surface on almost all occasions, and the penetration depth will be very shallow. The argon laser light is not absorbed by water but is almost totally absorbed by hemoglobin. Therefore its penetration will be deeper than that of the CO<sub>2</sub> laser but still relatively shallow. In addition, its penetration will be markedly altered by the vascularity of the target tissue itself and the presence or absence of blood on the surface of the target. The neodymium-YAG laser is only minimally absorbed by water and is absorbed by hemoglobin to a far lesser degree than that of the argon. Thus, its penetration is by far the deepest of the three laser types in use today (Fig 1).

Currently, both argon and YAG lasers may be delivered via fiberoptics. Thus they can be used during endoscopy and, as an extension of this, a laser may

Mark H. Mellow, MD, Division of Gastroenterology, Oklahoma City Clinic, 701 Northeast 10th Street, Oklahoma City, OK 73104.



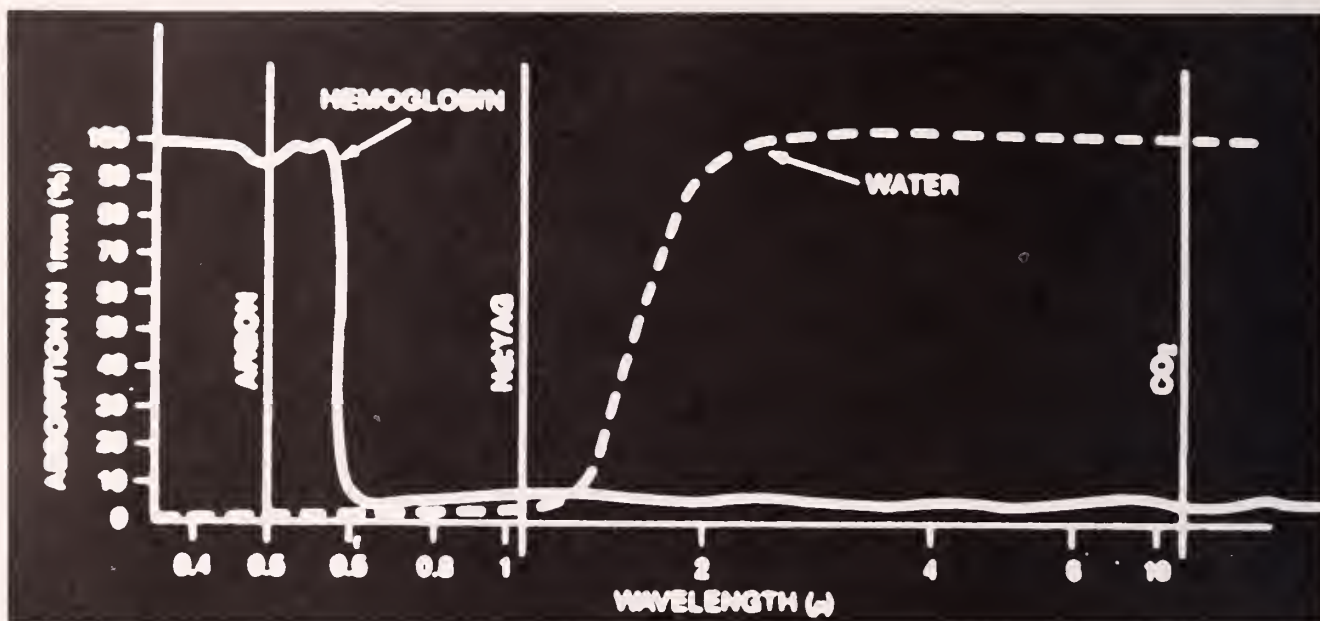


Fig 1. Absorption characteristics of the commonly used medical lasers. Note high absorption of argon laser by hemoglobin and high absorption of CO<sub>2</sub> laser by water. Penetration into biologic tissues is, therefore, less than with Nd:YAG.

be guided to anything that an endoscope can reach in the gastrointestinal tract. Since we now have endoscopes that will traverse the entire colon and even advance into the distal ileum, as well as scopes that will reach down into the upper gastrointestinal tract several feet into the jejunum, laser fibers can be taken to most important areas of intraluminal gastrointestinal pathology.

Delivery of laser energy to the target is accomplished by passing the laser fiber, encased in a quartz waveguide, through the biopsy channel of gastrointestinal endoscopes (Fig 2). The laser energy is activated by pressing on a foot pedal. Table 1 lists the gastrointestinal conditions for which laser treatment has been used.

Table 1. Laser Uses in Gastroenterology

Photocoagulation in GI hemorrhage
Peptic ulcers
Angiodysplasias
Mallory-Weiss tears
Esophageal varices
Tumors
Hemorrhoids*
Radiation colitis*
Photoablation in GI lesions
Neoplasms involving:
Esophagus, GE junction, antrum, papilla of Vater, colon, rectum
Strictures:
GE junction, pylorus, postsurgical (eg, colocolonic)
Creation of internal anastomosis for pancreatic pseudocysts*
Perianal condylomata*
*Clinical experience is limited

The two major general uses of lasers in gastroenterology today are photocoagulation of blood vessels and vaporization of neoplastic tissue. As tissue is heated, critical temperatures are reached for cell edema (45°C); cell death, protein coagulation (60°C), and tissue vaporization (100°C).<sup>1</sup> In general, the effect on the target tissue will be dependent upon the laser type used (and, within a particular laser type, upon the power output of that laser), the tissue's cooling ability, and the distance from the laser to the target.<sup>2</sup> Biologic tissue starts the cooling process instantaneously with the application of external heat. The rate of cooling is determined by the characteristics of the tissue adjacent to the target as well as the vascularity of the target. One might think of blood vessels traversing beneath the surface of a biologic target as freight trains, picking up and carrying the heat away from the target site.

The primary determinant of the effect on the target tissue is the distance from the laser to the tissue, with tissue effect increasing exponentially as the distance decreases. While, theoretically, one can predict target tissue effect quite accurately, in clinical practice prediction of target effect is considerably more difficult. First, one is often dealing with a moving target, with tissue moving toward and away from the endoscope tip during the respiratory cycle. In addition, it is not always possible to aim the laser at a target "straight on"; at times a somewhat tangential aim is required. In addition, one cannot accurately predict the vascularity below the surface of the target tissue. Absolutely critical for endoscopic laser use is the ability to instantaneously judge sur-



**Fig 2.** The YAG laser fiber, encased in a quartz waveguide, is inserted into the biopsy channel of a gastrointestinal endoscope (upper scope or a colonoscope). It is passed out the tip of the scope and aimed at desired target.

face tissue effect, adjusting the power, pulse duration, and target distance to achieve the desired effect. This requires rapid hand-eye-foot coordination.

### Laser Photocoagulation in Gastrointestinal Hemorrhage

While we tend to think of gastrointestinal hemorrhage patients in a rather similar generic sense (a "GI bleeder" was just admitted to the hospital), it is clear from several recent studies, most notably a study compiled by the American Society of Gastrointestinal Endoscopy (ASGE), that subcategories of a large number of patients with GI bleeding will have significantly different outcomes (Table 2).<sup>3</sup> The ASGE survey identified several important nonendoscopic variables, all easily evaluated clinically, that helped predict survival in the patient with acute upper GI bleeding (Table 3). To summarize, the two major categories of patients who are in trouble with upper gastrointestinal bleeding are those who have a serious underlying medical illness and/or those who continue to bleed despite medical therapy, necessitating emergency surgery. Patients with these unfavorable clinical characteristics, as outlined in Table 3, should be considered for early therapeutic endoscopy.

**Table 2. Mortality Rate for Upper GI Bleeding**

Underlying complicating conditions . . . . .	40%
Urgent surgery . . . . .	25%
Bleeding continues in hospital . . . . .	20%
All UGI bleeding . . . . .	10%
Elective surgery . . . . .	2%



**Fig 3.** The "visible vessel" — Vessel protruding from the base of a peptic ulcer, seen endoscopically. Such a finding often portends continued bleeding or re-bleeding.

If the procedure is successful, bleeding will be stopped, and we can convert a patient traditionally requiring emergency surgery, with its corresponding high morbidity and mortality, into a patient who may be able either to leave the hospital without further surgery or to have surgery performed on an elective basis once the condition has been stabilized.

A major recent advance in the area of therapeutic endoscopy relates to the finding that, with bleeding peptic ulcer disease, the acute re-bleeding potential can be rather accurately estimated based upon the condition of the ulcer base at the time of emergency endoscopy. These findings, pioneered by workers at the University of Oklahoma and extended more recently by others, can be summarized as follows — patients with a blood vessel visibly protruding from the ulcer base ("visible vessel") at the time of index endoscopy have a much higher chance of continuing to bleed or of re-bleeding than do ulcer patients in whom no visible vessels are found (Fig 3).<sup>4</sup> Thus, the therapeutic endoscopist can concentrate his attention on that important subgroup of patients with

**Table 3. Factors Adversely Affecting Survival in Acute Upper GI Bleeding**

Age > 50
Multiple system diseases (eg, emphysema, congestive heart failure)
Major surgery within 1 month
Sepsis
Hematemesis within 24 hours
Maroon stools within 24 hours
Nasogastric aspirate red
Systolic BP $\leq$ 80 on admission



**Table 4. Outcome in Patients with Bleeding Peptic Ulcers**  
(Bown et al, 1984)

	Re-Bleeding or Continued Bleeding		Stigmata Recent Hemorrhage	Emergency Surgery	Mortality
	Visible Vessel (active)	Visible Vessel (non-bleeding)			
Laser	2 of 10*	2 of 25*	1 of 27	5 of 62*	1 of 62*
Control	7 of 9	14 of 29	3 of 23	19 of 61	8 of 61

\*P<0.05

bleeding ulcers, namely those with pathology most likely to prove continually troublesome if not treated.

Several studies have examined the treatment of acute bleeding peptic ulcer with laser therapy, both argon and YAG.<sup>5</sup> Perhaps the best of these studies is a prospective study in which, at the time of endoscopy, patients were randomly selected to either receive laser treatment or act as controls, receiving no laser treatment. Standard postendoscopy ulcer therapy was used in all cases. The study findings are outlined in Table 4 and can be summarized as follows: Patients with acute bleeding peptic ulcers with a visible vessel in the ulcer base, bleeding or not bleeding, who were not treated at the time of endoscopy had a statistically significant greater potential for re-bleeding, emergency surgery, and mortality than those who were laser treated.<sup>6</sup>

During the initial 18 months of YAG laser use at Presbyterian Hospital, we used endoscopic laser therapy to treat severe bleeding peptic ulcers in 18 patients, most of whom were elderly and had significant underlying disease. Only patients with a visible vessel in the ulcer base were treated (as mentioned previously, such patients would be expected to continue bleeding or to re-bleed acutely at a rate of 50% to 85%). Our results, similar to those of Bown and Swain, are summarized in Table 5. For the first time, we may have a nonsurgical way of moderating morbidity and mortality in acute peptic ulcer bleeding.

## Complications

The complications of laser therapy include perforation (1% to 2%), increased severity of bleeding if the laser beam causes vaporization of the blood vessel, and abdominal distension from gas insufflation. It is very important to emphasize that performing endoscopy in a severely ill, acutely bleeding patient is difficult. Hypoxia, aspiration, vascular compromise from continued hypotension, all can have disastrous effects in such patients. Therapeutic endoscopies, therefore, require skilled nursing personnel and specialized endoscopic suites or operating rooms; for patients at high risk for aspiration, pre-endoscopic intubation may be desirable. Finally, the bleeding site is

**Table 5. Laser Treatment in Bleeding Peptic Ulcers**  
Presbyterian Hospital 1984-1985

18 patients
Mean age = 71
Mean transfusion requirement prior to laser treatment = 7 units
Bleeding stopped . . . . . 14
Emergency surgery . . . . . 3
Deaths . . . . . 1

not always easily accessible, and inaccessibility (inability to wash away clot, difficulty in advancing the laser fiber) is a feature of 15% to 30% of patients.

## Summary

The use of lasers in the acutely bleeding patient with peptic ulcer disease affords a nonsurgical method of stopping the bleeding and can be lifesaving in the high-risk patient. Successful endoscopic treatment can either prevent surgery entirely or can convert an emergency procedure into an elective one. Complication rates reported in the literature are low. However, the procedure is technically difficult and, in dealing with an acutely ill, elderly, bleeding patient, proper training and preparation of the endoscopist is critical, as is proper preparation of the entire laser team.

## References

1. Cummins L. Laser-tissue interaction, Fleischer D, Jensen D, Bright-Asare P (Eds): *Therapeutic Laser Endoscopy in Gastrointestinal Disease*. Boston, Martinus Nijhoff 1983, pages 9-27.
2. Dwyer R, Yellin A, Craig J, et al. Gastric hemostasis by laser phototherapy in man. *JAMA* 1976; 23:1383-1384.
3. Silverstein F, et al. The national ASGE survey on upper gastrointestinal bleeding. *Gastrointestinal Endoscopy*; 27:73-102, 1981.
4. Griffiths WJ, Neumann DA, Welsh JD. The visible vessel as an indicator of uncontrolled or recurrent gastrointestinal hemorrhage. *New England Journal of Medicine*; 300:1411-1413, 1979.
5. Fleischer D. Endoscopic laser therapy for gastrointestinal disease. *Archives of Internal Medicine*; 144:1225-1230, 1984.
6. Swain CP, et al. Controlled trial of neodymium-YAG laser photocoagulation in bleeding peptic ulcers. *Gastroenterology*; 84:1327, 1983.

*Mark H. Mellow, MD, is a clinical associate professor of medicine at the University of Oklahoma College of Medicine. He has been a lecturer and instructor at numerous endoscopic laser surgery courses for physicians throughout the US. A 1968 graduate of the New York Medical College, Dr Mellow holds memberships in many professional organizations.*



# Improvement in the Birth Weight Distribution Among White Newborns in a Community Hospital

SAMUEL SEPKOWITZ, MD

A comparison was made of the birth weights of white live infants weighing less than 2,500 g and born in a community hospital during two consecutive five-year periods (1973 to 1977 and 1978 to 1982). White live births during these periods numbered 9,527 and 9,363 respectively. Live births in infants with birth weights less than 2,500 g declined 8.2% ( $P < .05$ , 6df). Births of infants with birth weights below 1,500 g declined 19.2%; those under 1,250 g showed a decline of 46.5% ( $P < 0.02$ ). The incidence of twins with birth weights of 2,500 g or less declined 22% ( $P < 0.05$ ), and that of twins weighing more than 2,500 g increased 27% ( $P = 0.032$ ). The mean weight of live twins increased 201.7 g ( $P < 0.01$ ). During this time, neonatal deaths at the hospital declined 30.6% ( $P = 0.026$ ). This lowered mortality rate appears to result primarily from the increased weight of newborns, reflecting a longer gestational period.

Two facts dominate evaluations of neonatal mortality rates. The first is the continuing decline in neonatal mortality nationwide throughout most of this century.<sup>1</sup> Second, gestational age and birth weight as an expression of gestational age are the major determinants of neonatal mortality. For industrialized countries, the very-low-birth-weight rate

has become recognized as the principal predictor of neonatal mortality.<sup>2</sup>

During the past thirty years, however, epidemiological estimates of the decline in low-birth-weight rates, this major determinant of neonatal mortality, have shown little agreement — from little or no change nationally<sup>3-5</sup> to statewide reductions of 15% in California,<sup>6</sup> 21% in a six-state study,<sup>7</sup> 34% in North Carolina,<sup>8</sup> and a significant decline in the over-1,000 g white birth weight groups in Alabama.<sup>9</sup> A hospital-based investigation by Lee found that a decrease in the number of infants with very low birth weights was responsible for three-fourths of the lower neonatal rate,<sup>10</sup> but later reports refuted this finding.<sup>2</sup> The evidence, therefore, of shifts in the number of low-birth-weight infants has been contradictory, and hospital-based verification in the United States is lacking.

This study was undertaken to determine whether there has been any significant shift in the low-birth-weight rates among infants born in a private community hospital. As the changes in birth-weight distribution among both white and black newborns indicate a racial disparity in vital statistics information,<sup>6,8,9</sup> only the weights of white low-birth-weight infants and white twins born in the 1973 to 1977 and 1978 to 1982 periods were analyzed in this study. In contrast to vital statistics information, the use of

Samuel Sepkowitz, MD, 5300 North Meridian, Oklahoma City, OK 73112.

Table 1. — Total Deliveries, Live Births, Perinatal Deaths, and Transferred Neonates at Deaconess Hospital, 1973 to 1982

	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982
Total deliveries	1904	2063	2090	1933	1959	1914	1913	2087	2101	2092
Stillbirths	20	20	11	17	14	13	13	22	13	16
Live births	1884	2043	2079	1916	1945	1901	1900	2065	2088	2076
Neonatal deaths	24	22	20	17	19	15	15	13	18	12
Transferred neonates	2	16	16	12	17	19	13	27	33	14

data from a single hospital, with births and deaths being reported by the same personnel, should have reduced the likelihood of underreporting.<sup>11</sup>

## Methods

Deaconess Hospital, Oklahoma City, is a community hospital with a level II newborn facility.<sup>12</sup> During this study, the paramount emphasis in treatment was on minimal handling. In the nursery, oxygen was administered in concentrations necessary to abolish cyanosis and improve respiratory rates. Bagging and mask ventilation were employed for prolonged apnea. There has been a trend toward earlier feedings and intravenous therapy, but restriction of handling has always been emphasized. The nursery has no mechanical ventilation equipment or service.

The records of all live births and deaths from 1973 to 1982 were reviewed. Neonatal mortality data were obtained from records in the newborn nursery. A record of all transferred-out neonates was available for the period under study and includes the outcome of these transfers. Other information was obtained from the obstetrical logbooks. All patients had private physicians. More than 25 pediatricians cared for newborns, and approximately the same number of obstetricians had delivery privileges. Obstetricians delivered 85.0% of all babies from 1973 to 1977 and 93.2% from 1978 to 1982; family practitioners delivered the remainder.

Statistical tests employed were the chi-square test, t-test, and Cox-Stewart test for trend.

## Results

During the ten years under study, the number of infants born at Deaconess Hospital ranged from 1,904 to 2,101 annually. The mean number was  $2,005 \pm 87$  (SD). Annual numbers of stillbirths, live births, neonatal deaths, and newborns transferred to

neonatal intensive care units are shown in Table 1. Five-year comparisons (Table 2) revealed no statistical change in numbers of births, stillbirths, live births, or twin births.

Data from the obstetrical log (Table 3) revealed a slight decline in the number of primiparous deliveries. Annual cesarean-section rates rose steadily from 8.2% to 13.4%. Table 2 shows a 30.0% increase in the number of cesarean sections from the 1973-to-1977 period to the 1978-to-1982 period ( $P < 0.05$ ). Available information for primiparous breech deliveries and cesarean section of primiparous breeches is also included. After fetal monitoring became available in 1975, 66.5% of all deliveries were monitored; by 1982, 88.0% were monitored. Only minor changes occurred in the number of total deliveries, stillbirths, live births, and twin births.

The number of white live births for the two periods was essentially the same (Table 4). The number of infants with low birth weights declined 6.8%; the number of infants with very low birth weights showed a decline of 19.2%. Neonatal deaths and mortality rates also declined. The small numbers of black live births increased by 86.5%. As with the white births, there was a decline in the percentage of low-birth-weight and very-low-birth-weight newborns and the neonatal mortality rates. None of these changes was statistically significant.

Table 5 shows the comparison of white births as well as neonatal deaths by specific weight groups. Live births of infants weighing less than 2,500 g declined 8.2%. All low-birth-weight groups over 500 g declined, except the 1,251 g-to-1,500 g group, which increased by 58.0%. The weight group under 1,250 g showed the greatest change, declining from 63 live births to 37 ( $P < 0.02$ ). The decline in the low-birth-weight group among all live births was not significant ( $P = 0.24$ ). However, the reduction in the

**Table 2. — Comparison of Perinatal Factors at Deaconess Hospital, 1973-1977 and 1978-1982**

	1973-1977	1978-1982	% Change
Total deliveries	9,949	10,107	1.25
Stillbirths	82	77	6.1
Live births	9,867	10,030	1.6
Twin deliveries	83	81	2.4
Cesarean sections %	9.7	12.6	30.0*
Primiparous deliveries %	46.5	44.4	4.5

\*P < 0.05.

number of live births of infants with weights under 2,500 g between the two periods did reach significance ( $P < 0.05$ ). Among infants weighing more than 2,500 g, there were 18 deaths in each five-year period. Thirty fewer deaths (80 vs 50) occurred in infants weighing less than 2,500 g, a 38.7% reduction. Significant declines occurred over the period in neonatal deaths ( $P = 0.026$ ), as well as in weight groups under 2,500 g ( $P = 0.021$ ) and from 501 g to 1500 g ( $P = 0.0003$ ).

Total twin births, live births, and white live births changed little for the two periods (Table 6). Stillbirths among twins declined from 6 to 0. For white live-birth twins, the mean birth weight increased from 2,267.9  $\pm$  709 g (SD) to 2,469.7  $\pm$  684.7 g (SD). The mean difference of 201.7 g was significant ( $P < 0.01$ ). There was also an upward trend, increasing monotonically, in the average weight of live white twin births from 1973 to 1982 ( $P = 0.031$ ). The number of infants weighing less than 2,500 g declined by 22.0% ( $P < 0.05$ ); in those weighing less than 1,500 g, there was

a 50.0% decline ( $P < 0.05$ ). Moreover, the number of newborns weighing over 2,500 g increased by 27.0% ( $P = 0.032$ ). The figure graphically displays the shift to increased birth weights in all weight-specific groups. White twin deaths declined from 16 to 4, a 75.0% reduction ( $P < 0.01$ ). In the period 1973 to 1977, 60.0% of all live white twins weighed less than 2,500 g, compared to 48.0% in the period 1978 to 1982.

## Discussion

The study clearly indicates a decline in the incidence of white low-birth-weight infants and particularly of very-low-birth-weight infants born in a community hospital during the period 1978 to 1982 as compared to the period 1973 to 1977. This finding of a 6.8% reduction confirms and extends through 1982 declines reported elsewhere.<sup>6-9</sup> Moreover, the decline in birth weights of less than 2,500 g should also be considered an indication of a greater, more important reduction of birth weights of less than 1,500 g. Such a reduction is not detected in vital statistics reports because of various persistent underreporting artifacts involving births and deaths.<sup>9</sup> As expected, a private obstetrical service had a lower low-birth-weight rate (5.62% from 1978 to 1982) than the State of Oklahoma (6.4% from 1979 to 1981).<sup>13</sup> The results of this hospital study are in keeping with a low-birth-weight decline from 8.0% to 4.0% (1966 to 1980) in one of the largest obstetrical units in Western Europe.<sup>14</sup>

Favorable shifts of weight among twin newborns provide the most convincing evidence in this study

**Table 3. — Deaconess Hospital Obstetrical-Log Summary, 1973 to 1982**

	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982
Primiparous %	49.2	46.7	44.8	45.2	46.5	44.0	45.4	46.0	44.6	42.0
Twin deliveries	15	16	18	17	17	8	16	20	18	19
Cesarean section %	8.2	8.4	10.6	10.6	10.5	10.8	11.4	12.0	13.2	13.4
Primiparous breech				52	43	47	36	45	47	44
C section primiparous breech				27	24	25	21	32	25	35
# of fetal monitors used			23	140	310	842	1085	1301	1653	1842



**Table 4. — Comparison of Live Births, Low and Very Low Birth Weights, Neonatal Deaths, and Neonatal Mortality Rates at Deaconess Hospital Among White and Black Newborns 1973-1977 and 1978-1982**

	1973-1977	1978-1982	% Change
<b>White live births</b>	9,527	9,363	1.7
% <2500 g	6.03	5.62	6.8
% 501-1500 g	.78	.63	19.2
Neonatal deaths	98	68	30.6 <sup>†</sup>
*Neonatal mortality rate	10.3	7.3	31.0
<b>Black live births</b>	340	634	86.5
% <2500 g	12.6	11.2	11.1
% 501-1500 g	1.47	.78	46.9
Neonatal deaths	4	5	25
*Neonatal mortality rate	11.8	7.9	23.7

\*Per 1,000 live births  
<sup>†</sup>P = 0.026

to substantiate a significant decline in the low-birth-weight problem at Deaconess Hospital. The mean weight for white live twins increased more than 200 g; to a significant degree, fewer small babies and more large babies were born. Such changes in the size and number of these twins strongly suggest that obstetrical intervention may have been responsible. The absence of any stillbirths among twins is further indication of the impact of improved obstetrical management during the later five-year period.

There appear to be no discernible changes in the obstetrical population that might account for the lower number of low-birth-weight infants. The frequency of white live births, stillbirths, and births of twins changed little, neither annually nor in the five-year comparisons. A steady increase in the cesarean-

section rate was similar to that reported nationally, but the number of sections performed was 28% less than the national average.<sup>15</sup> The number of primiparous deliveries was above the national average (to 1980) and dropped slightly in the five-year comparisons.<sup>16,17</sup> The incidence of primiparous breech deliveries and cesarean sections in breech presentations was essentially unchanged. Referral of high-risk maternity cases could have been a confounding factor in this study. For example, maternal diabetes and fetal anomalies detected by ultrasound may have resulted in transfers to high-risk obstetrical services, but such factors apparently caused little impact.

Reduction in the white neonatal mortality rates resulted principally from fewer births of infants weighing less than 1,250 g. The numbers of births of infants weighing less than 1,250 g declined from 63 to 37 (P < 0.02). Applying the improved weight-specific mortality rates of 1978-to-1982 to the 1973-to-1977 study period, it appears that a favorable shift in weight alone accounted for at least one-half of the mortality reduction. Medical interventions may have been responsible for the remainder of the decline.

It is possible, moreover, that whatever was responsible for the lower incidence of infants with low birth weights may have improved the chances of survival for the entire group. The favorable shift of weights within the 1,001 g-to-1,500 g weight group, a decline of 45.4% in the 1,001 g-to-1,250 g weight group, and an increase of 58.0% in the 1,251 g-to-1,500 g weight group support this view. Kleinman<sup>7</sup> and others<sup>6,8,9</sup> have devised formulas to partition the improvement in neonatal mortality into better-babies and better-care components. Foster and Kleinman recently

**Table 5. — White Live Births and Neonatal Deaths: Comparison of Weight-Specific Groups Deaconess Hospital, 1973-1977 and 1978-1982**

	<500 g	501-750 g	751-1000 g	1001-1250 g	1251-1500 g	1501-2000 g	2001-2500 g	<2500 g	>2500 g
<b>Live births</b>									
1973-1977	5	19	17	22	17	109	386	575	8952
1978-1982	6	7	12	12	27	92	372	528	8835
% Change	20.0	63.1	29.4	45.4	58.0	15.6	3.9	8.2*	1.3
<b>Deaths</b>									
1973-1977	5	19	16	11	7	11	11	80	18
1978-1982	6	7	9	3	4	10	11	50	18
% Change	20	63.1	43.7	72.7	42.8	9.0	0	37.5 <sup>†</sup>	0

\*P < 0.05, by chi-square test with 6 degrees of freedom.  
<sup>†</sup>P = 0.021.

**Table 6. — Comparison of Twin Deliveries, Births, White Weight-Specific Groups and Deaths, Deaconess Hospital, 1973-1977 and 1978-1982**

	1973-1977	1978-1982	% Change
Total deliveries	83	81	2.4
Stillbirths	6	0	100
Live births	166	162	2.4
White live births	158	154	2.5
<2500 g	95	74	22.1*
<1500 g	24	12	50*
>2500 g	63	80	27 <sup>†</sup>
White deaths	16	4	75.0 <sup>‡</sup>

\*  $P < 0.05$ .

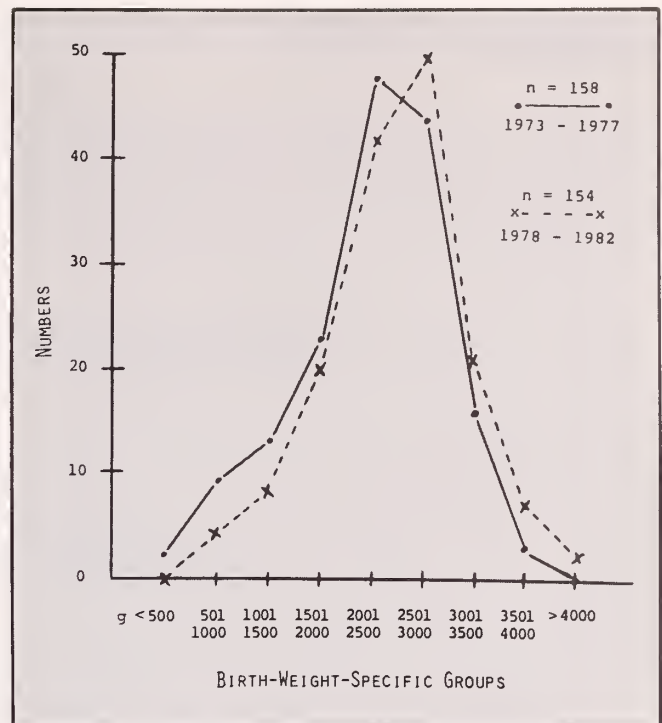
<sup>†</sup>  $P = 0.032$ .

<sup>‡</sup>  $P < 0.01$ .

cautioned, however, that a "strict division into a risk versus care component is not possible." They point to several factors in perinatal care that are "likely to improve the survival chances of infants at any birth weight,"<sup>8</sup> a conclusion in accord with a Utah study<sup>19</sup> but at variance with Paneth and colleagues.<sup>5</sup>

A review of national vital statistics reveals two trends in the incidence of white infants with low birth weights. White low-birth-weight rates rose from 6.56% in 1950 to 7.16% in 1966, a 9.1% increase. From 1966 to 1980 the rate declined to 5.68%, a 22% decrease.<sup>1,17,21</sup> By 1980, seven states — Iowa, Minnesota, North Dakota, Oregon, South Dakota, Washington, and Wisconsin — had achieved unprecedented low-birth-weight rates of under 5%; all were over 5% in 1975.<sup>21</sup> Failure to consider these two trends may contribute to conflicting views on the extent of any decline in the low-birth-weight rate or, in fact, on whether there has been one. Lee and colleagues studied vital statistics for the period from 1950 to 1976 and concluded there had been no improvement in the weight distribution of live births, contrary to what is reported here and by others.<sup>1,7-9,13</sup> David and Siegel attribute these contradictions to an underreporting artifact in Lee's data that resulted from more complete reporting of births and deaths by hospitals (nonhospital deliveries were virtually eliminated in the United States during the 1950s).<sup>8</sup>

Underreporting artifacts only partly explain the increase in low-birth-weight infants in a population with improving standards of living and better access to medical care. By 1960, over 98% of all white deliveries nationwide occurred in hospitals,<sup>20</sup> yet the low-birth-weight rate increased until 1966. Even New York City, with virtually every birth reported as a hospital delivery (1962 to 1966), also registered in-



**Fig 1.** A comparison of the number of white twins by birth-weight-specific groups, 1973-1977 and 1977-1982. There was a decrease in the number in each weight group under 2500 g and an increase in each weight group over 2500 g.

creases in the white low-birth-weight rate until 1966.<sup>21</sup> Although the unfavorable weight shift from 1950 to 1966 is only partially explainable, neonatal mortality still generally declined during this period. The flattening of this mortality decline before 1966 may reflect an inability of medical care to sustain neonatal mortality reductions in the face of increasing number of hospital-born low-birth-weight infants. Other explanations point to medical management errors such as inadequate oxygen usage or the excessive use of chloramphenicol as causes.<sup>22</sup>

Deaconess Hospital experienced a decline in the low-birth-weight rates like that nationwide, but the reasons for the decline in this hospital setting may differ from those elsewhere. Greater access to medical care — prenatal and neonatal, preventive and public health intervention, family planning, better nutrition and general health — may well be the causes for a lowering of the national low-birth-weight rate. At Deaconess Hospital, however, such improvements appear to have arrived before the period covered in this study. Better antenatal obstetric care and better timing of delivery, mediated in part through ultrasound examination which was introduced on a large scale in 1978, should be considered and investigated as an explanation for the favorable shift in birth weights. In fact, ultrasonographic visualization during pregnancy was associated with a significant



improvement in the ability to detect the presence of twins before delivery: 62.6% in 1977-1982 as compared to 39.2% in 1973-1977 ( $P < .01$ ). Tocolytic agents to prolong gestation were rarely employed; among twin pregnancies; ritodrine was prescribed for only two patients.

Improvement in the birth-weight distribution among white newborns, indicative of an increase in gestational age, has several important implications. Programs designed to lengthen gestational periods should be maintained and not be looked upon as failures.<sup>9</sup> Recognition of these favorable weight shifts among white newborns should be an impetus toward improving the low-birth-weight rates among black newborns, which appear to have become an unyielding problem.<sup>6,8,9</sup> Furthermore, it is possible, in view of this study, that wider application of current obstetrical management and techniques would reduce the low-birth-weight rates even more. Those concerned with neonatal mortality studies should recognize the impact of these weight shifts over time and appreciate the need for controlled inquiries where mortality rate improvements, in particular, are the issue. □

**Acknowledgments:** Geoffrey P. Altshuler, MD, and Harris D. Riley, Jr., MD, gave helpful criticism; Arthur Nunnery, MD, and Elisa Lee, MD, provided statistical analyses; Maxine Fightmaster and Josie Segal assisted in the preparation and editing of the manuscript.

## References

1. Budetti P, McManus P, Barrand N, et al: *The Costs and Effectiveness of Neonatal Intensive Care*. Washington, D.C.; Congressional Office of Technology Assessments, U.S. Government Printing Office, 1981, pp 28, 13.
2. Lee K-S, Paneth N, Gartner LM, et al: The very low-birth-weight rate: principal predictor of neonatal mortality in industrialized populations. *J Pediatr* 1980;97:759-64.
3. Behrman RE: The field of neonatal-perinatal medicine. IN: Fanaroff AA, Martin RJ, (eds): *Behrman's Neonatal-Perinatal Medicine*. 3d ed. St. Louis: CB Mosby, 1983:1-3.
4. Lee K-S, Paneth N, Gartner LM, et al: Neonatal mortality: an analysis of the recent improvement in the United States. *Am J Public Health* 1980;70:15-21.
5. Paneth N, Wallenstein S, Kiely JL, et al: Social class indicators and mortality in low-birth-weight infants. *Am J Epidemiol* 1982;116:364-75.
6. Williams RL, Chen PM: Identifying the sources of the recent decline in perinatal mortality rates in California. *N Eng J Med* 1982;306:207-14.
7. Kleinman JC, Kovar MG, Feldman JJ, et al: A comparison of 1960 and 1973-1974 early neonatal mortality in selected states. *Am J Epidemiol* 1978;108:454-69.
8. David RJ, Siegel E: Decline in neonatal mortality, 1968 to 1977: better babies or better care? *Pediatrics* 1983;71:541-46.
9. Goldenberg RL, Humphrey JL, Hale CB, et al: Neonatal death in Alabama, 1970-1980: an analysis of birth weight and race specific neonatal mortality rates. *Am J Ob Gyn* 1983;145:545-52.
10. Lee K-S, Tseng P-I, Eidleman AI, et al: Determinants of the neonatal mortality. *Am J Dis Child* 1976;130:842-45.
11. McCarthy BJ, Terry J, Rochat RW, et al: The underregistration of neonatal deaths: Georgia 1974-1977. *Am J Public Health* 1980;70:977-82.
12. Sepkowitz S: An appraisal of neonatal intensive care unit weight-specific mortality rates. *J Okla State Med Assoc* 1983;76:339-47.
13. Oklahoma State Dept of Health: Maternal and Child Health Service. Okla. City. *Births and Deaths*. Report for 1981, p 37.
14. Boylan P, O'Driscoll K: Improvement in perinatal mortality rate attributed to spontaneous preterm labor without use of tocolytic agents. *Am J Obstet Gynecol* 1983;145:781-83.
15. Placek PJ, Taffel S, Moien M: Cesarean section delivery rates: United States, 1981. *Am J Public Health* 1983;73:861-62.
16. National Center for Health Statistics: Monthly Vital Statistics Report. Vol 31, no 2, Suppl (2). Ventura SJ. *Trends in First Births to Older Mothers, 1970-79*. Hyattsville, Md.: Public Health Service, May 1982:1-11. (DHHS publication no (PHS) 82-1120).
17. National Center for Health Statistics: *Advance Report of Final Natality Statistics, 1980*. Monthly vital statistics report vol 31, no 8. Supp. Hyattsville, Md.: Public Health Service, November 1982:22-23. (DHHS publication no (PHS) 83-1120).
18. National Center for Health Statistics. Foster JE, Kleinman JC: *Adjusting Neonatal Mortality Rates for Birth Weight*. Vital and Health Statistics, Series 2, no 94. DHHS Pub. No 82-1368. Public Health Service. Washington. U.S. Government Printing Office, September 1982, p 7.
19. Wooley FR, Schuman KL, Lyon JL: Neonatal mortality in Utah. *Am J Epidemiol* 1982;116:541-6.
20. Vital Statistics of the United States, Volume 1, Natality. Dept of Health and Human Services (formerly Health, Education, and Welfare), Public Health Service, 1955-1978.
21. Pakter J, Nelson F: Factors in the unprecedented decline in infant mortality in New York City. *Bull NY Acad Med* 1974; 50:840-69.
22. Shapiro S: New reduction in infant mortality: the challenge of low birth weight. *Am J Pub Health* 1981;71:365-6.

*Samuel Sepkowitz, MD, is a clinical professor of pediatrics at the University of Oklahoma College of Medicine. He is a 1947 graduate of the University of Texas Medical Branch, Galveston, and is a member of both the American Pediatric Society and the American Academy of Pediatrics.*



# The Noninvasive Vascular Laboratory

## An Update

### Part III: Current Uses — Evaluation of the Venous System

(Last of three parts)

M. ALEX JACOCKS, MD, and THOMAS L. WHITSETT, MD

**Part one of this series reviewed the basic technological devices and methods used in noninvasive vascular laboratories. Part two dealt with the evaluation of arterial problems and how these procedures can be helpful. The series concludes with this discussion of methods for evaluating the venous system.**

**T**he technological principles involved in the noninvasive evaluation of patients with venous disorders were presented in Part I of this series [JOURNAL, March 1986]. The purpose of this article is to discuss the noninvasive evaluation of venous problems and how these procedures provide objective data that facilitate cost-effective clinical decision making.

It has been known for some time that the diagnosis of deep vein thrombosis (DVT) by reliance on clinical signs and symptoms is highly inaccurate.<sup>1</sup> Since approximately 50% of patients considered clinically to have DVT do not, a reliable noninvasive diagnostic test is desirable. While venography remains the gold standard for identifying deep venous thrombi, it is costly, allergenic, uncomfortable, thrombogenic (probably less now than in the past), and not easily repeated. Thus, the use of noninvasive tests that provide objective evidence will often suffice in patients

with possible DVT.<sup>2</sup> While basic principles of these techniques were presented previously, they will be discussed here from the standpoint of their clinical utility.

The location of lower extremity venous thrombi is important in determining clinical implications and the accessibility of the veins for diagnostic purposes. The most common sites of DVT are the (1) posterior tibial vein, (2) soleal plexis, (3) popliteal vein, (4) femoral vein, (5) common femoral vein, and (6) iliac vein.<sup>3</sup> Fortunately all but the soleal plexis are accessible by noninvasive techniques. Also, site is important since veins proximal to the popliteal veins are large enough to produce embolization.

#### Venous Doppler

Venous Doppler evaluation of patients suspected of having DVT is quick and easy to perform and can even be used on patients in traction or with plaster leg casts. The technique involves listening to the common femoral, superficial femoral, popliteal, posterior tibial, and saphenous veins using any type of Doppler instrument.<sup>4</sup> A bidirectional Doppler is desirable in a minority of circumstances when the arterial signal intensity precludes hearing the venous sounds.

The major consideration in this technique is delineating whether the venous signals are spontaneous, phasic with respiration, augmentable, and competent. Care must be taken to compare identical sites in both legs and to listen immediately adjacent to

From the Peripheral Vascular Laboratory, Department of Surgery, University of Oklahoma College of Medicine, Oklahoma City, Oklahoma.

Direct correspondence to M. Alex Jacocks, MD, Assistant Professor, Department of Surgery, University of Oklahoma College of Medicine, PO Box 26307, Oklahoma City, OK 73126.

the previously mentioned arteries to avoid inadvertent examination of a collateral vessel. Abnormalities are due to venous obstruction, either partial or complete, and to venous valvular insufficiency.

Spontaneous venous sounds of normal quality and similar in both legs suggest fully patent deep veins. Phasicity is the varying intensity of the venous signal associated with respiration. Inhalation and exhalation, respectively, increase and decrease abdominal pressure and have opposite effects on venous flow. Obstructed veins have a higher pressure distal to the involved site, and venous flow is not influenced by the minor abdominal pressure changes associated with respiration. Fully patent veins will demonstrate immediate and pronounced enhancement of venous flow with minimal augmentation (squeezing a distal site, eg, the calf). In patients with deep venous obstruction, this finding is either absent or abnormal when compared to the patient's other leg. Valve competency is also assessed at this time by squeezing proximal to the Doppler probe and listening for retrograde flow.

This technique has proved amazingly accurate for us and others.<sup>5</sup> It requires little patient cooperation and can be performed easily at the bedside, even on patients who are on a respirator or otherwise immobilized. We compared the results of the venous Doppler examination to the results of venography examination performed within 24 hours in 49 legs, with the results shown in Table 1. For an inexpensive test requiring minimal technology and human resource, and with an accuracy of 96%, the venous Doppler is impressive. The accuracy of the test in our limited experience is slightly higher than in a larger series,<sup>5</sup> which is commensurate with several other reports. Disadvantages of the venous Doppler in diag-

nosing DVT include the Doppler's inability to assess the age and duration of a thrombotic process. Doppler findings of a DVT may persist indefinitely, although there often is an improvement with spontaneous thrombolytic activity of venous recannulization. Also, the technique is less sensitive with calf vein thrombi than with more proximal clots.

## Phleborrheography

Phleborrheography (PRG) is a plethysmographic technique developed specifically for diagnosing DVT.<sup>6</sup> It provides a means of quantifying results and recognizing progression or resolution of disease, including the identification of recent thrombi in patients with postphlebotic syndrome and during pregnancy. While the examination requires patient cooperation, obesity and edema, which limit venography, do not interfere.

From cuffs placed on the chest, thigh, calf, and foot, the PRG records respiratory-induced volume changes. Acute deep venous obstruction markedly reduces or obliterates the respiratory waves in the affected leg. The waves return within weeks or months with the development of adequate collaterals or recannulization. The magnitude of the respiratory waves is semiquantitative; the waves are helpful in determining the age of a process and in evaluating patients with recurrent disease.

Another PRG mechanism for assessing deep venous patency involves compression of the foot and determination of the adequacy of venous outflow. Normally, foot compression does not alter the leg's respiratory waveforms. However, with deep venous obstruction, this maneuver causes baseline elevation. This compression abnormality takes much longer to normalize after DVT than do the depressed respiratory waves. The PRG, although very technician-dependent, provides uniquely valuable information in patients with recurrent disease where repeated venography is inappropriate and less diagnostic. We compared the results of PRG to venography in 42 limbs of patients with suspected DVT, and the results are shown in Table 2. Other investigators have reported similar sensitivities and specificities in the range of 69% to 95% and 95% to 100%, respectively.<sup>7,8</sup> The PRG, like the venous Doppler, is less accurate in thrombotic disease below the knee.

## Impedance Plethysmography

Impedance plethysmography (IPG) is an effective means of evaluating patients with suspected DVT.<sup>9</sup> It is a commonly used noninvasive technique that

Table 1. — Sensitivity, Specificity, and Accuracy of the Venous Doppler vs Venography in Assessing 49 Limbs for Deep Vein Thrombosis

True positives	29	Sensitivity	$\frac{29}{29 + 1} = 96\%$
False positives	1	Specificity	$\frac{18}{18 + 1} = 94\%$
True negatives	18		
False negatives	1	Accuracy	$\frac{29 + 18}{49} = 96\%$



requires less time and is less technician-dependent than the PRG. IPG involves assessing the rate of venous outflow of the legs. A sensing plethysmographic cuff or tape electrodes (for the electrical impedance technique) are placed on the patient's calves and connected to a recorder. The legs are slightly elevated while venous occluding cuffs are inflated on the thighs. After calf distension stabilizes, the occluding cuffs are rapidly deflated, and the rate of venous outflow is determined. Deep venous obstruction impairs the rate of outflow. Since IPG has a sensitivity of 94% for proximal venous thrombosis,<sup>10</sup> it can be used to make therapeutic decisions.<sup>2</sup> It is less useful in patients with recent DVT and in patients with congestive heart failure, pregnancy, immobilization, arterial insufficiency, inability to relax, and hypotension. Because of its overall accuracy, ease of administration, and relatively low cost, IPG is preferred to venous Doppler as the noninvasive test supplement for most health care facilities.

### 125-fibrinogen Scanning

125-fibrinogen leg scanning detects thrombi that are actively accreting fibrin.<sup>11</sup> The radiopharmaceutical is injected intravenously, and a portable isotope localization monitor is used at various times following injection to detect activity over several sites from the thigh to lower calf. A 20% difference from the corresponding site of the opposite leg is compatible with DVT. False positive tests occur over hematomas, wounds, or areas of inflammation. The test is insensitive to very proximal vein thrombosis and takes from 12 to 48 hours to become positive. It cannot be used in patients receiving anticoagulants. It is best used as a research tool or in conjunction with IPG, where it is very sensitive for calf vein thrombi and IPG has better sensitivity for more proximal thrombi.

### Tc-99m RBC Venography

Tc-99m red blood cell (Tc-99m RBC) venography is a relatively new technique used to recognize DVT.<sup>12</sup> Labeled red cells are injected intravenously, and the lower abdomen and legs are imaged. Scrupulous technique is essential with Tc-99m RBC venography since less than optimal studies can result in misleading information. The sensitivity and specificity of 95% and 85%, respectively, are sufficient to warrant the use of this technique when other tests are inappropriate. Also, it has been useful in distinguishing popliteal cysts from DVT.<sup>13</sup>

### Duplex Scanning

A very new and exciting noninvasive technique for evaluating patients with suspected DVT and for following their clinical course after standard anticoagulant or thrombolytic therapy involves the use of the real-time B-mode high-resolution ultrasound scanner with a duplex Doppler.<sup>14</sup> This examination is best performed with both 8-MHz and 4-MHz probes.

Early reports are very encouraging, with a diagnostic sensitivity and specificity of 94% and 88%, respectively. Duplex scanning has been able to identify clot age, evolving clots, and particularly serious thrombi that have distal attachments with more proximal bodies and tails that are free-floating. Also, it promises to be a valuable research tool for following the natural history of thrombi and for monitoring results of therapy. While the equipment is too expensive for studying only venous disorders, it is reasonable if purchased also for use in carotid and peripheral artery disease as discussed in Part II [JOURNAL, April 1986] of this series.

### Venous Valvular Insufficiency

Venous insufficiency, usually part of the postphlebotic syndrome, is characterized by ankle and leg edema, stasis dermatitis, cutaneous ulceration, and recurrent DVT. Valve destruction causes venous hypertension when the patient is in an upright position, resulting in most of these findings. In early or milder forms of venous valvular insufficiency, the diagnosis may not be clear, and noninvasive tests can confirm or refute this possibility.

The easiest method involves use of a standard venous competency assessment, part of the routine venous Doppler examination. Normally, competent valves in the deep veins prevent retrograde flow when proximal pressure is applied. There are other techniques that can be used with the PRG and the photo-plethysmograph. While these additional tests are

**Table 2. — Sensitivity, Specificity, and Accuracy of Phleboreography vs Venography in Assessing 49 Limbs for DVT**

True positives	27	Sensitivity	$\frac{27}{27 + 2}$	= 93%
False positives	2			
True negatives	12	Specificity	$\frac{12}{12 + 2}$	= 95%
False negatives	2			
		Accuracy	$\frac{27 + 12}{42}$	= 93%



usually unnecessary, they are occasionally valuable when the venous Doppler examination is equivocal or for providing objective data after operation or other treatment efforts.

## References

1. Cranley JJ, Canos AJ, Sull WJ: The diagnosis of deep venous thrombosis; fallibility of clinical symptoms and signs. *Arch of Surg*, 111:34-36, 1976.
2. Hull RD, Hirsh J, Carter CJ, et al: Diagnostic efficacy of impedance plethysmography for clinically suspected deep vein thrombosis. *Ann of Int Med*, 102:21-28, 1985.
3. Seviitt S, Gallagher NG: Venous thrombosis and pulmonary embolism. A clinicopathological study in injured and burned patients. *British J of Surg*, 48:475, 1961.
4. Sumner DS: Diagnosis of venous thrombosis by Doppler ultrasound. *Venous Problems*, Year Book Medical Publishers, 1978. Edited by John J Bergan, MD, and James ST Yao, MD, PhD.
5. Strandness DE, Sumner DS: Ultrasonic velocity detector in the diagnosis of thrombophlebitis. *Arch of Surg*, 104:180-183, 1972.
6. Cranley JJ, Gay AY, Grass AM, et al: A plethysmographic technique for the diagnosis of deep venous thrombosis of the lower extremities. *Surg of Gyn and Obstet*, 136:385-394, 1973.
7. Comerota AJ, Cranley JJ, Cook SE, Sippel P: Phleboreography — results of a ten-year experience. *Surg*, 92:573-585, 1982.
8. Bynum LJ, Wilson JE, Crotty CM, et al: Noninvasive diagnosis of deep venous thrombosis by Phleboreography. *Ann of Int Med*, 89:162, 1978.
9. Wheeler HB, O'Donnell JA, Anderson FA, et al: Occlusive impedance phleboreography: A diagnostic procedure for venous thrombosis and pulmonary embolism. *Prog Cardio Dis*, 17:199-205, 1975.
10. Hull R, Hirsh J, Sackett DL, et al: Combined use of leg scanning and impedance plethysmography in suspected venous thrombosis. *New Eng J of Med*, 296:1497-1500, 1977.
11. Kakker VV: The diagnosis of deep vein thrombosis using the 125-fibrinogen test. *Arch of Surg*, 104:152, 1972.
12. Lishona R, Derbekyan V, Novales-Diaz JA, Rush CL: Tc-99m red blood cell venography in deep venous thrombosis of the lower limb, an overview. *Nuc Med Atlas*, 3:208-224, 1984.
13. Littlejohn GO, Grand CA, Ada A, Wong C: Popliteal cysts and deep venous thrombosis: Tc-99m red blood cell venography. *Radiology*, 155:237-240, 1985.
14. Hannan LJ, Stedje KG, Skorcz MJ, et al: Venous imaging of the extremities; our first two thousand cases. *Bruits*, 9:85, 1985.

*M. Alex Jacocks, MD, is an assistant professor in the Department of Surgery at the University of Oklahoma Health Sciences Center. A 1977 graduate of the university's College of Medicine, he is certified by the American Board of Surgery. Dr Jacocks is a Fellow of the American College of Surgeons and a member of the Southwestern Surgical Congress, Association for Academic Surgery, and Association for Surgical Education.*

*Thomas L. Whitsett, MD, is a professor of medicine and pharmacology in the OU Health Sciences Center's Department of Medicine. He was graduated from the university in 1962 and is certified by the American Board of Internal Medicine. He holds memberships in the American Society of Pharmacology and Experimental Therapy and the Society for Clinical Pharmacology & Therapeutics.*

## Coming in June . . .

Manuscripts being considered for publication in June include a report on infant mortality in Oklahoma, with a discussion of the risk factors associated with neonatal and postneonatal mortality, and an article on the surgical management of peripheral nerve injuries. Already scheduled is Part 2 of the series "Endoscopic Laser Therapy for Gastrointestinal Disorders," which will deal with gastrointestinal hemorrhage not associated with peptic ulcer disease.



## News from the Oklahoma State Department of Health

### Child Abuse Prevention

By law any physician, surgeon, osteopathic physician, resident, intern, physician's assistant, or registered nurse, as well as any private citizen, is required to report any incident of *suspected* child abuse or neglect to the Department of Human Services (DHS). Only suspicion of abuse/neglect is necessary for reporting. The law states that "any person convicted of violating the provisions shall be guilty of a misdemeanor."

Physical abuse is defined in the law as any nonaccidental injury caused by another person. It occurs when a parent or other person willfully or maliciously injures a child or causes a child to be injured, tortured, or maimed, or when unreasonable force is used upon a child. Neglect is continued failure to provide a child with needed care and protection. Sexual abuse can be defined as contacts or interactions

between a child and an adult when the child is being used as an object of gratification for adult sexual needs or desires.

There are several characteristics that may be helpful in identifying families at high risk for child abuse. For instance, a parent who is excessively concerned about a child's injury or who is detached and unconcerned about an injury should arouse suspicion of abuse. Also, a parent who describes his/her own childhood as involving severe corporal punishment or sexual abuse, or parents who are disappointed with the child or disgusted by child care activities may be guilty of child abuse. Parents who show little or no interest in a child's medical treatment, or parents who spank or threaten severe punishment while in a health care setting may also be guilty of child abuse.

Other indicators of high risk are social isolation, marital conflict, one-parent families, financial stress, drugs and alcohol abuse, mental illness or mental retardation, personality problems, history of abuse, child rejection, transients, and family violence.

For more information regarding child abuse prevention activities in your area, call the Office of Child Abuse Prevention at (405) 271-4477. To report a possible case, please call the Department of Human Services.

DISEASE	February 1986	TOTAL TO DATE		
		This Year	Last Year	5 Yr. Avg.
AMEBIASIS	0	1	2	0
CAMPYLOBACTER INFECTIONS	13	24	21	—
ENCEPHALITIS, INFECTIOUS	1	1	5	4
GIARDIA INFECTIONS	14	30	31	—
GONORRHEA (Use ODH Form 228)	945	2131	2080	2266
HAEMOPHILUS INFLUENZAE INVASIVE DISEASE	15	35	42	—
HEPATITIS A	25	46	80	68
HEPATITIS B	13	18	27	28
HEPATITIS, NON-A NON-B	3	4	9	—
HEPATITIS UNSPECIFIED	8	12	14	28
MEASLES (RUBEOLA)	0	0	0	0
MENINGITIS, ASEPTIC	3	7	6	7
MENINGITIS, BACTERIAL (non-meningococcal, non H. Influenzae)	28	51	13	9
MENINGOCOCCAL INFECTIONS	1	4	6	7
PERTUSSIS	13	14	7	4
RABIES (Animal)	3	7	8	23
ROCKY MOUNTAIN SPOTTED FEVER	0	0	1	0
RUBELLA	0	0	0	0
SALMONELLA INFECTIONS	16	37	45	47
SHIGELLA INFECTIONS	12	22	28	31
SYPHILIS (Use ODH Form 228)	15	33	41	32
TETANUS	0	0	0	0
TUBERCULOSIS	23	29	28	41
TULAREMIA	0	0	1	0
TYPHOID FEVER	0	0	0	1

Diseases of Low Frequency	Total to Date This Year	
ACQUIRED IMMUNE DEFICIENCY SYNDROME	1	
BRUCELLOSIS	1	
LEGIONNAIRES DISEASE	0	
MALARIA	1	
REYE SYNDROME	1	
TOXIC SHOCK SYNDROME	6	
<b>RABIES</b>		
MAYES	Skunk	1
LINCOLN	Skunk	1
WASHITA	Skunk	1

**ELK CITY COMMUNITY HOSPITAL  
IS ON THE UPBEAT**

WE HAVE A GOOD PRACTICE  
OPPORTUNITY IN  
EMERGENCY MEDICINE

CONTACT HOSPITAL ADMINISTRATOR  
COMMUNITY HOSPITAL  
ELK CITY, OK  
405 225-2511

**ELK CITY IS OKLAHOMA'S BEST  
KEPT SECRET**



## Norman L. Dunitz, MD, becomes association's 81st president

Tulsa physician Norman L. Dunitz, MD, was installed as 1986-87 president of the Oklahoma State Medical Association at the OSMA's Annual Meeting in Tulsa early this month. He succeeds Elvin M. Amen, MD, of Bartlesville, becoming the OSMA's eighty-first president at the inaugural gala, Friday, May 9, in the Radisson Excelsior Hotel.



Dr Dunitz was president of the Tulsa County Medical Society in 1984, before becoming the OSMA's president-elect, and served a two-year term as president of the medical staff at Tulsa's Saint John Medical Center in 1979 and 1980.

Born in Newton, Iowa, in 1927, the orthopedic surgeon earned his medical degree in 1953 at the University of Iowa College of Medicine in Iowa City and interned at Wayne County General Hospital, Eloise, Michigan. His specialty training included positions at the VA Hospital in Iowa City, Children's Memorial Hospital in Chicago, and a three-year fellowship at the Mayo Clinic, Rochester, Minn. He moved to Tulsa in 1958.

Dr Dunitz is a diplomate of the American Board of Orthopaedic Surgery and has served on several board committees. He is also a Fellow of both the American Academy of Orthopaedic Surgery and the American College of Surgeons. □

### PLICO funding and tort reform

## Executive director details reasons for OSMA assessment

On February 9, 1986, in a special meeting of the OSMA Board of Trustees and House of Delegates, a \$600 member assessment won unanimous approval. The purpose of the assessment is to raise necessary capital and surplus for the Physicians Liability Insurance Company (PLICO) and to help finance an immediate tort reform effort in the Oklahoma legislature.

In answer to questions about the assessment, OSMA Executive Director David Bickham issued the following statement:

**PLICO Assessment — \$450.** State law and insurance department regulations require \$1 million of capital and surplus for each \$100,000 of risk.

In 1979 when OSMA decided to form PLICO, the House of Delegates authorized an assessment to raise the necessary capital and surplus to fund the company. The initial assessment provided about \$2.5 mil-

lion. Initially (1980), PLICO retained \$100,000 of the risk on each doctor and purchased reinsurance for amounts over \$100,000. In subsequent years the retention has steadily increased. In 1986 PLICO will retain \$400,000 of each physician's risk, and it is anticipated if current reinsurance conditions exist that next year the retention will be \$500,000. PLICO needs \$4 million in capital and surplus for 1986, and if the retention is to be \$500,000 in 1987, it will need \$5 million.

In 1976 PLICO entered into an insurance agreement with Hartford and Lloyd's of London that provided for a return of premium in the event loss did not equal or exceed actuarial estimates. In 1984 OSMA received a \$1.4 million return of premium from the underwriters (Hartford and Lloyd's of London). By action of the House of Delegates, \$1 million was set aside for capitalizing PLICO. In 1984 and

# When you need Professional help...



*call a specialist.*

**RTS** is the professional placement specialist. With 15 years of medical experience, we have the expertise to know your employment requirements and match them with qualified medical applicants.

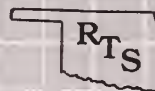
Pre-interviewing and screening saves costly expenditures of time, advertising and recruiting costs. By utilizing our professional resource pool, you receive prompt attention to your special needs.

**RTS** has the most innovative concept in permanent and temporary medical help available today, covering all areas of the medical field, including:

- PHYSICIANS    • PHYSICIAN ASSISTANTS    • RN/LPN    • LAB TECHS
- X-RAY/EKG TECHS    • EMT's    • ER COVERAGE

*Call a professional...*

OKC 405/794-9642 • TULSA 918/582-2132



**PLACEMENT SERVICE, INC.**  
HOME OF RELIEF TECH SERVICE

SERVING OKLAHOMA PHYSICIANS, CLINICS AND HOSPITALS STATEWIDE • LICENSED BY THE STATE OF OKLAHOMA



---

*Research conducted by George Hemstreet, MD*

## OU licenses marketing of new cancer detection technology

Technology developed by a University of Oklahoma professor that identifies bladder and urinary tract cancer cells long before the cells appear abnormal will become available to the private sector through a licensing agreement between the University of Oklahoma and Cytodiagnostics, a firm that will be locating in Oklahoma City.

George P. Hemstreet III, MD, a professor of urology and microbiology at the OU Health Sciences Center, has conducted biomedical research using the Leitz image analysis system, a computer-directed microscope that can rapidly scan cells on a slide and detect those that are cancerous.

Under the agreement approved by the OU Board of Regents March 6, Cytodiagnostics will market the process, thus greatly improving its availability to the general public. OU will receive royalty interest on the company's gross revenues and will have an equity position in the firm. OU's income from the process will be used to further research at the university.

"This is an exciting venture and it typifies the

kind of contributions the university can make to economic development," said OU President Frank E. Horton.

"The university strongly encourages the transfer of information developed within the academic departments to the private sector and feels an obligation to do all we can to ensure that Oklahoma firms have the first opportunity to explore with us these exciting kinds of development," he added.

The system accurately and quickly identifies cancer calls — even those that don't look cancerous to the most practiced and astute observer. The cells are stained with a special fluorescent dye that binds to DNA, the chemical nucleus that controls each cell. The fluorescent light given off by the DNA corresponds exactly to the amount of DNA present.

Research has shown that if the light emitted by a cell is greater than .5 phosphor particle units, the cell is almost always associated with a potential cancerous condition, although it may look normal. □

## OSMA assessment (continued)

1985, two payments of \$500,000 were made to PLICO for capital and surplus. Thus, beginning 1986, PLICO had capital and surplus of \$3.5 million. An additional \$500,000 is needed to meet the state insurance department's requirements for 1986. An additional \$1.5 million is needed if PLICO retains \$500,000 of the risk in 1987.

There were two ways to raise the necessary capital — PLICO could raise its premium, declare a dividend, and put the money in surplus; however, the dividend would be considered a profit by the IRS, and taxes would have to be paid. It would take a premium of \$2 for each dollar that was put into capital. According to our consultants, an assessment by OSMA could be funneled directly to capital and surplus and would not be taxable.

The House of Delegates, in its special called meeting, unanimously elected to raise the necessary funds by assessment.

**Tort Reform — \$150.** The OSMA Council on Long-Range Planning and Development, at its meeting in October 1985, approved for submission to the Board of Trustees a major tort reform proposal that

called for the formation of a broad-based coalition to be organized in 1986 and culminate in proposed legislation to be considered by the legislature in 1987.

Events outside the control of OSMA led to the formation of a coalition much like the plan conceived by OSMA. However, because of extreme insurance problems experienced by some members of the coalition (at one time approximately 300 osteopathic physicians had no prospects of insurance coverage after March 23), the coalition decided to go to the legislature during the current session. OSMA had to make a decision to join the coalition and participate in the 1986 effort or continue with its plans for a 1987 program. In January the OSMA Executive Committee decided to join the coalition and called the special February meeting of the Board of Trustees and the House of Delegates.

Based on other statewide legislative campaigns, it was estimated that between \$500,000 and \$750,000 would be needed to achieve tort reform. The OSMA House of Delegates voted unanimously to levy a \$150 assessment, specifying that the money be spent only on tort reform. □





A

## Bearding the statehouse lions

On March 12, for the second time this spring, members of the coalition Oklahomans Against Lawsuit Abuse converged on the state capitol. They took their "Return to Reason" campaign for tort reform directly to state lawmakers for face-to-face discussions of the issues involved.

(A) Led by Kenneth Whittington, MD, (striped tie) Bethany, coalition members surround State Senator Tim Leonard, Beaver.

(B) Tulsans Jerry L. Puls, MD, president-elect of the Tulsa County Medical Society; Vaughndeane Fuller, OSMAA legislative chair; and John B. Nettles, MD, get together for their meeting with senators from northeast Oklahoma.

(C) Mary Ann Deen, OSMA auxiliary president, Ada; Joy Quinn, Oklahoma City; and Julie Weedn, OSMAA first vice-president, Duncan, compare notes before entering the state senate office.

(D) Pausing in the hallway between visits with legislators are Oklahoma City physicians Jerry B. Vannatta, MD, and William L. Hughes, MD, chairman of the OSMA Council on State Legislation.

(E) Raymond L. Cornelison, Jr., MD, Midwest City, OSMA secretary-treasurer, and Otie Ann Carr, Oklahoma City, OSMA director of state legislation (foreground) meet in the capitol rotunda for a progress report.

(F) OSMA President Elvin M. Amen, MD, Bartlesville, gets a hopeful "thumbs up" from townsman William P. "Pat" Tinker, MD.

B



C



D



E

F



**ELK CITY COMMUNITY HOSPITAL  
IS ON THE UPBEAT**

WE HAVE A GOOD PRACTICE  
OPPORTUNITY IN  
INTERNAL MEDICINE/CARDIOLOGY

CONTACT HOSPITAL ADMINISTRATOR  
COMMUNITY HOSPITAL  
ELK CITY, OK  
405 225-2511

**ELK CITY IS OKLAHOMA'S BEST  
KEPT SECRET**

## HARD WORK SMALL MIRACLES



Dear Mr. Jo

I'm Simon Martin.  
After surgery for a brain tumor, I was  
paralyzed on my right side. After the  
hospital, my doctor recommended the  
Rehabilitation Institute of Oklahoma.

Now, I work my cattle just as I always  
have, and I walk without so much  
as a cane. The Institute can help  
you rebuild your life. I'm living  
testament to that.

Sincerely,

Simon Martin

**A**fter injury or illness strike  
and the hospital stay is over,  
the recovery process may not be  
complete. For many, the next step  
on the road to a more self-  
sufficient lifestyle is the  
Rehabilitation Institute of  
Oklahoma.

We work hard with every patient  
to achieve the small miracles  
of recovery.

Call or write today for complete  
information.



Rehabilitation  
Institute  
of Oklahoma

700 Northwest 7th Street  
Oklahoma City, OK 73102  
405-236-3131



---

### Internists elect former OSMA president

## **C.S. Lewis, Jr., MD, assumes top office in 63,000-member ACP**

C.S. Lewis, Jr., MD, FACP, Tulsa, 1977-78 president of the Oklahoma State Medical Association, has been elected president of the 63,000-member American College of Physicians (ACP).

Dr Lewis was named president at the conclusion of the ACP's 67th annual scientific meeting in San Francisco recently. A clinical professor of medicine at the University of Oklahoma Tulsa Medical College, he served the national group of internists as president-elect in 1985-86 and succeeds Edward W. Hook, MD, Charlottesville, Va, as president.

An internist specializing in cardiology, Dr Lewis will lead the ACP, the country's largest medical specialty society, for a year. Dr Lewis, who received his medical degree from Washington University School of Medicine, St Louis, in 1945, has been active in ACP leadership for ten years. He served as an ACP governor for Oklahoma, as chairman of the college's board of governors, as college treasurer, and as a member of the college's policy-making body, the board of regents. □

## **State MDs back affiliation of physicians' office assistants**

Phillip H. Winslow, MD, Ponca City; Robert J. Capehart, MD, Tulsa; and Joseph W. Stafford, MD, are urging state physicians to sponsor memberships for their office assistants in the Oklahoma Association of Medical Assistants, Inc (OMAS).

In a statewide mailing, the three OMAS physician-advisors emphasize the importance of a doctor's office assistants in scheduling, billing, record keeping, and clerical work, and in seeing that, in general, the office runs smoothly. "The training and continuing education they receive often makes the difference," the letter points out.

"Through OMAS, your employees can meet and

learn from other professional medical assistants. They can learn how to keep your office running smoothly while relieving you from the day-to-day burdens which few of us have the time to personally oversee," the letter continues.

Doctors are encouraged to sponsor the membership of at least one of their office assistants. The dues are tax deductible for the physician. Annual county, state, and national dues are \$70. Checks and membership information (name, address, phone, etc) should be sent to Jeanette Girkin, EdD, CMA, 2310 South Hickory Place, Broken Arrow, OK 74012. □

### Internal medicine loses 47 in five years

## **"Stress test" or not, residency training takes emotional toll**

Nearly one percent of all residents in internal medicine require a leave of absence because of emotional problems. Furthermore, 10% of that number drop out of medicine completely and 2% commit suicide, according to a review of residency programs from 1979 through 1984.

"In the past five years, internal medicine lost 47 physicians to other careers and eight committed suicide," report Jay W. Smith, MD, and colleagues, of the University of Arizona, Tucson. "Although this represents a small percentage of internal medicine house staff. . . it represents resources lost from one-half to two-thirds of an average medical school

graduating class." The researchers base their findings, reported in the *Journal of the American Medical Association*, on results of a survey sent in 1984 to 436 directors of internal medicine residency programs; 63% of the surveys were returned. An impaired resident was defined as one who had emotional problems and required a leave of absence from the training program.

The overall incidence of impairment was 0.9%, with the highest incidence among first-year interns (1.4%) and the least during the third year of residency training (0.4%). No residents required leave during the last year of training. Emotional impairment re-

## Residency training (continued)

quiring leave was twice as common among female residents as among males.

Most impaired residents recovered and apparently did well; 79% continued in medicine; 42% finished their original programs; 27% continued in another medical field; and 10% continued internal medicine training in another residency program. "However, 10% completely dropped out of medicine and 2% had a successful suicide; an additional 3% attempted suicide unsuccessfully," the researchers say. The outcome for the remaining 6% is not known.

Emotional problems were recognized in the majority of impaired residents before they left training, although 45% demonstrated no previous problems. The survey revealed that 65% of residency program directors thought impairment was related to residents' obligations outside the training program; only 31% thought it was related to the work load within the program.

"Some educators believe that the residency program should be viewed as a stress test before practice," the researchers observe. "Those who consider

the internship experience as hazing have been countered by those saying that some hazing is definitely worthwhile."

Commenting editorially, Barry Blackwell, MD, of the University of Wisconsin Medical School, Milwaukee, suggests two methods for reducing stress during graduate training: access to confidential individual counseling and group meetings that allow sharing of feelings and opportunities for problem solving.

Although most of the programs offered regular meetings with program directors and chief residents, Blackwell observes that only one-fourth of the programs offered other group sessions and still fewer provided counseling services. He notes further that fewer than one-third of program directors acknowledged that work load might be a factor in impairment of house staff. "More disappointing is the fact that two-thirds placed responsibility on faculty medical school selection, the contemporary culture, or the residents' own moonlighting activity (greater now than ever, due to an average accumulated debt of close to \$30,000 at graduation)."



INTERESTED  
IN FINE OFFICE FACILITIES  
IN A THRIVING COMMUNITY?

### EDMOND MEDICAL PLAZA

Across Street From Edmond Memorial Hospital

First Class Medical Suites  
At An Affordable Rate

WRITE: Edmond Medical Plaza Leasing Agent  
1601 Northwest Expressway, Suite 1010, Oklahoma City, Oklahoma 73118  
Or Call Clay T. Farha: 405-524-6336

EDMOND MEDICAL PLAZA  
120 North Bryant, Edmond, Oklahoma

## Get a Grip on Overdue Accounts.



**Your Problem:** Overdue accounts. If you don't collect them, you're left with one choice: write them off.

**Your Alternative:** Tulsa Adjustment Bureau, Inc. For over 20 years, we've been helping clients in Tulsa and the surrounding area get a firm hold on overdue accounts. Our trained staff of professionals know how to get results. Results that mean money to you. And, in the event we don't collect, you won't owe us a cent. Guaranteed.

Call or drop by our office and we'll begin collecting your delinquent accounts. Let Tulsa Adjustment Bureau, Inc. show you how to get a grip on your overdue accounts today.

1754 Utica Square, Suite 283 Tulsa, Oklahoma 74114 (918) 749-1481  
In Oklahoma dial, 1-800-722-2703

T U L S A  
A D J U S T M E N T  
B U R E A U



# Always on call.



For over 20 years, C. L. Frates and Company has been recognized as "Insurance Counselors to the Oklahoma State Medical Association." Because of our long-term relationship with OSMA, we understand the priorities and time limitations of the medical profession.

We are deeply committed to meeting the special needs of doctors, staff and their families through eight OSMA-endorsed insurance plans. With OSMA owned and governed Physicians Liability Insurance Company, we offer professional liability and a comprehensive medical/hospitalization plan, PLICO HEALTH. Our other OSMA-endorsed insurance programs are disability income, business overhead expense, term life, accidental death/dismemberment, personal liability umbrella and hospital indemnity.

One of our experienced insurance specialists is available at any time, day or night, to discuss or provide a complete, no obligation, personal and business risk analysis. For more information about our OSMA-endorsed insurance plans, please give us a call.



P.O. Box 18839 • Oklahoma City, OK 73154 • 405/524-7811 • Toll Free 1-800-522-9219

*Poor performance, fund shortages cited*

## ACP calls for limit on use of public funds for foreign grads

Public funds should not be used to pay for the postgraduate residency training of graduates of unaccredited foreign medical schools, says the American College of Physicians (ACP), the nation's largest medical specialty society, in a recently adopted position statement; nor should such funds be used to assist US citizens who wish to attend unaccredited medical schools outside of the United States.

Eighteen percent of an estimated total of 75,000 physicians in the United States are graduates of foreign medical schools. These foreign medical graduates (FMGs) — whether they are foreigners who attended medical school in their own country or US citizens who attended a medical school outside of the United States — often immigrate or return to the United States for the required postgraduate years of clinical residency training.

"In the past, public funds, such as Medicare, which are usually allocated for patient care services, have been used to support the graduate medical education of both US citizens and foreigners in the nation's hospital-based residency programs," according to John R. Ball, MD, JD, FACP, associate executive vice president of health and public policy for the ACP. However, in 1985, only four percent of the 5,203 US citizens who had attended foreign medical schools passed the Foreign Medical Graduate Examination in the Medical Sciences (FMGEMS) — the two-day test that is administered by the Educational Commission for Foreign Medical Graduates and is designed to measure both the medical knowledge in the basic and clinical sciences and the clinical skills of applicants to US medical residency programs. Eighteen percent of the approximately 20,200 foreigners who sat for FMGEMS passed.

Says Dr Ball, "Because of this poor performance record, especially for US citizens who attend foreign medical schools, the current shortage of public funds, and a possible surplus of physicians in the United States, the ACP believes that the public monies currently used to support graduates of foreign medical schools in US clinical residency programs should be eliminated."

In the statement, the ACP recommends that the United States provide graduate medical education of the highest quality to a limited number of foreign physicians who enter the United States as exchange visitors. This graduate training should be in disci-

plines such as general internal medicine, ambulatory care, and epidemiology that are better suited for the medical needs of a foreign physician's home country than is training in modern American medicine, with its emphasis on sophisticated technologies. "The ACP recommends that funds for this training come from a source other than patient care revenues," notes Dr Ball, "perhaps through the development of education resources in other nations."

For those physicians who enter the United States as refugees (individuals fleeing from political, racial, or religious persecution) and who meet all examination and certification requirements for admission to graduate medical residency training in the United States, the ACP recommends federal financial support so that they may pursue their medical careers.



**Veterans  
Administration**

## PHYSICIAN

Board Certified or Eligible in  
IM, Emergency Medicine, or FP  
to staff VA Outpatient Dept. in  
MUSKOGEE, OKLAHOMA

Salary \$64,000 - \$72,000  
Liberal Fringe Benefits  
An Equal Opportunity Employer

Contact: RUSSELL GLYNN, M.D.  
VA Medical Center (11A)  
Muskogee, OK 74401

(918) 683-3261 ext. 351

## IN MEMORIAM

### 1985

<i>E.C. Lindley, MD</i>	<i>March 1</i>	<i>Meredith M. Appleton, MD</i>	<i>September 7</i>
<i>Charles W. Freeman, MD</i>	<i>March 5</i>	<i>Robert A. Northrup, MD</i>	<i>September 8</i>
<i>Floyd L. Waters, MD</i>	<i>March 5</i>	<i>Carl H. Bailey, MD</i>	<i>September 9</i>
<i>Forest R. Brown, MD</i>	<i>March 19</i>	<i>Hugh B. Spencer, MD</i>	<i>September 13</i>
<i>William M. Leebron, MD</i>	<i>March 22</i>	<i>Bernice E. McCain, MD</i>	<i>September 14</i>
<i>Louis A. Martin, MD</i>	<i>March 22</i>	<i>Minard F. Jacobs, MD</i>	<i>September 30</i>
<i>Don D. Sullivan, MD</i>	<i>March 27</i>	<i>Robert Ray Rupp, MD</i>	<i>October 2</i>
<i>Hanna B. Karam, MD</i>	<i>March 28</i>	<i>William C. Moore, MD</i>	<i>October 24</i>
<i>John R. Cotteral, MD</i>	<i>April 30</i>	<i>Michael Wayne Durbin, MD</i>	<i>November 13</i>
<i>Ernest S. Kerekes, MD</i>	<i>June 8</i>	<i>Alan Luis Gorena, Jr., MD</i>	<i>November 19</i>
<i>L. Chester McHenry, MD</i>	<i>June 8</i>	<i>William Hampton Garnier, MD</i>	<i>November 20</i>
<i>Seigul J. Polk, MD</i>	<i>June 10</i>	<i>Jesse Ray Waltrip, MD</i>	<i>November 30</i>
<i>Murray M. Cash, MD</i>	<i>June 11</i>	<i>Charles F. Obermann, MD</i>	<i>December 30</i>
<i>Franklin Jesse Nelson, MD</i>	<i>June 13</i>		
<i>Robert L. Kendall, MD</i>	<i>June 21</i>		
<i>Marion K. Ledbetter, MD</i>	<i>July 3</i>		
<i>James Floyd Moorman, MD</i>	<i>August 8</i>		
<i>Oscar R. White, MD</i>	<i>August 14</i>		
<i>Maurice P. Capehart, MD</i>	<i>August 29</i>		

### 1986

<i>Alexander Poston, MD</i>	<i>January 3</i>
<i>Francis M. Duffy, MD</i>	<i>February 5</i>
<i>Edward L. Leonard, MD</i>	<i>February 14</i>

### "Justice in medical care" debated

## Rationing intensive care: Who makes the decisions and . . .

The rationing of intensive care unit (ICU) services is an everyday event at the University of Washington's Harborview Medical Center in Seattle, according to Michael J. Strauss, MD, MPH, and colleagues, reporting in the *Journal of the American Medical Association*. They studied 1,151 patient admissions in relation to bed availability and found no adverse effect on patient care or outcome.

However, a related study focusing on a different hospital shows that failure to ration care appropriately caused one patient to become comatose and led to a jury award of \$12 million against the admitting hospital. Expert testimony suggested the patient required one-to-one nursing care, but retention of borderline patients and admissions of several new patients made this impossible.

"The trial court's decision in this case raises the possibility of a legal obligation to discharge patients with only borderline possibilities of benefiting from ICU treatment so as to maintain the usual standard of care for those patients remaining," comment researchers H. Tristram Engelhardt, Jr., MD, PhD, of

Baylor College of Medicine in Houston, and Michael A. Ris, MD, of Massachusetts General Hospital in Boston.

At issue is whether or not excess capacity exists in the American health care system. In marked contrast to hospitals in other countries, US hospitals allocate up to 10% of their beds to intensive care units. Typically, these units account for only 7% of patient days per year, but 19% of hospital budgets. Thus, if care could be rationed and the number of beds cut, substantial savings in the nation's health dollars could be realized, some hypothesize.

The Seattle study appears to support this argument, says William A. Knaus, MD, of the George Washington University Medical Center in Washington, DC. "When ICU beds at Harborview Hospital were limited, physicians were able to exclude patients who appeared not to need these special services. In such circumstances, rationing may not only be possible on a daily basis, it could also be painless," he observes.

Yet such rationing would not cut costs. That could



**Human Herpesvirus Infections. Clinical Aspects.** Edited by Ronald Glaser and Tamar Gotlieb-Stematsky. New York: Marcel Dekker, Inc., 1982. Pp 280, illustrated, price \$35.

This is volume 2 in the "Infectious Diseases and Antimicrobial Agents" series. The human herpesviruses, which include herpes simplex virus types 1 and 2 (HSV1 and HSV2), human cytomegalovirus (CMV), varicella-zoster virus (VZV), and the Epstein-Barr virus (EBV), either cause or are associated with a whole spectrum of diseases ranging from infectious mononucleosis to malignancies and mental retardation. Moreover, the herpesviruses have the potential to cause a variety of different expressions. For example, HSV1 not only induces common cold sores, or herpes labialis, but it can also produce serious generalized infections, including encephalitis, and death. One of the important features of this group of viruses is the ability to establish latent infections in the individual after primary infection. Latent infections are usually asymptomatic, but recurrent dis-

ease caused by reactivation occurs for most of the herpes viruses, often resulting in an acute or occasionally chronic infection. There is also impressive evidence supporting the association of several of the human herpes viruses with malignant diseases such as Burkitt's lymphoma, nasopharyngeal carcinoma, and carcinoma of the cervix.

The book is divided into six chapters. The first deals with all aspects of herpes simplex virus infections and includes 385 references in the bibliography. Chapter 2, "Human Cytomegalovirus Infections," is an excellent treatment of this topic. These are followed by chapters dealing with varicella-zoster virus infections, Epstein-Barr virus and infectious mononucleosis, the association of Epstein-Barr virus with neurologic diseases, and a final chapter that deals with the therapy and prevention of human infections due to herpesviruses.

The editors and contributors to this book have addressed clinical problems that are important not only to specialists in infectious diseases but to physicians in different disciplines. It provides a good overview of the manifestations, immunology, and pathology of the diseases known to be caused by the human herpesviruses. There is also a brief discussion of certain diseases of unknown etiology which may or may not be associated with viruses in this group.

I recommend this book for its intended purpose.

*Harris D. Riley, Jr., MD  
Oklahoma City*

---

## who is denied care?

be accomplished only by cutting the number of ICU beds which, in turn, would raise the danger of not having sufficient services available for those in need, as in the case described by Engelhardt and Ris. To avoid that danger, decisions would have to be made as to who should and who should not receive intensive care.

"There are many reasons our country has avoided such explicit discussions of justice in medical care," Knaus says. "One of the major ones is that the complex, personal, and emotional aspects of such decision making frighten most politicians and economists."

Physicians are in the best position to evaluate competing claims for medical care, but cannot do it alone, he says. "Physicians must work with national and community leaders to educate the public to the realities of medical practice today. We must clearly say that, as powerful as American medicine is, it can never provide unlimited services for everyone. Choices have to be made among services and between individuals."



**Neurologic Infections in Children.** Edition 2. (Major Problems in Clinical Pediatrics, vol 12). By William E. Bell and William F. McCormick. Philadelphia: W. B. Saunders Co., 1981, pp 709, illustrated, price \$60.

The majority of infections of the meninges and the central nervous system occur in children. Thus, this book addresses an important and pertinent topic.

The authors have written a new and expanded version of their earlier monograph. This edition is about 150 pages longer than the first and contains new chapters on mycoplasma infections, leprosy, shunt infections, and antibiotic therapy. The treatment of most subjects is exhaustive.

It is divided into four parts. Part I, "Bacterial Infections of the Nervous System," contains seven chapters. They deal with general concepts and management of bacterial meningitis, antibiotic therapy,

## Book Shop (continued)

neonatal meningitis, and *Hemophilus influenzae*, meningococcal, pneumococcal, and tuberculous meningitis. The remaining four chapters in this section deal with focal suppurative infections of the nervous system, tetanus, botulism, and mycoplasma infections.

Part II is entitled "Viral Infections of the Nervous System" and contains seven chapters. After an introductory chapter, there is a chapter entitled "Virus Encephalitis and Aseptic Meningitis." This is followed by chapters dealing with specific infections of the nervous system including herpesvirus. There are also chapters dealing with chronic or slow viral infections of the central nervous system, rabies, and cat scratch disease. The chapter on herpes simplex virus infections contains an up-to-date review of this topic.

Part III, "Miscellaneous Infections of the Nervous System," covers both ordinary and rare fungal infections of the nervous system as well as parasitic, spirochetal, and rickettsial infections of the nervous system.

Part IV is entitled "Neurologic Conditions Related to Inflammatory or Infectious Disorders." This section covers such disorders as shunt infections, Reye's syndrome, Guillain-Barré syndrome, acute cerebellar ataxia, febrile seizures, and certain less common disorders.

The descriptions of the clinical features, diagnostic approaches, pathology, and treatment of various diseases are detailed and, in general, clear. The photographs of patients and anatomic specimens are of high quality. A strong feature of this book is the extensive reference list at the end of each chapter.

Despite the exhaustive approach, certain topics

are dealt with in too brief a fashion. One area in particular, which is discussed only sparsely, is the epidemiology of various infectious agents.

The grouping in the same chapter of virus encephalitis and aseptic meningitis produces some confusion. The amount of space devoted to rubella, particularly the lengthy discussions on the congenital rubella syndrome and on rubella vaccine, is somewhat puzzling.

Despite its weaknesses, the book has much to recommend it. It is easy to read and serves as a good touchstone for treatment of the diseases included.

Harris D. Riley, Jr., MD  
Oklahoma City

**Neurology of the Newborn.** (Major Problems in Clinical Pediatrics, Vol 22). By Joseph J. Volpe. Philadelphia: W. B. Saunders Co., 1981, pp 648, illustrated, price \$50.

As the author states, "The neurology of the newborn is a topic of major importance because of the preeminence of neurological disorders in neonatology today." This book presents, in a comprehensive and well-organized manner, information from a variety of basic science and clinical disciplines that is appropriate to an understanding of neurologic function and dysfunction in the perinatal period.

The book is divided into eight major sections. The first, "Human Brain Development," contains a discussion of the development of the central nervous system and of disorders arising from developmental abnormalities. In the second part, "Neurological Examination," there is a well written presentation of the neurologic examination of the newly born infant along with pertinent recent developmental data. This is followed by a chapter dealing with other methods of examination, monitoring, and laboratory assessment of the neonatal nervous system. The importance of new techniques for noninvasive monitoring of intracranial pressure is discussed. This section of the book is completed with a chapter on neonatal seizures.

Each of the remaining eighteen chapters deals with a specific subject. The bulk of the book, then, is related to a discussion of the neurologic disorders that occur exclusively in the neonatal period and the character of disorders that occur also later in life. The largest section is devoted to an in-depth discussion of hypoxic-ischemic brain insult and intracranial hemorrhage. There is a particularly thorough discussion of cerebral blood flow and metabolism under normal and abnormal circumstances.

### FAMILY PRACTITIONERS AND GENERAL INTERNIST LOOKING FOR PRIVATE PRACTICE

There is a perfect opportunity in Shawnee, Ok., 30 miles east of Oklahoma City. We will guarantee first year income of \$60,000.00 Net.

Send all inquiries and CV to Dr. G. D. Williamson, 1533 N. Harrison, Shawnee, Ok. 74801 or call 405-275-6903.

OFFICE SPACE AVAILABLE IN IDEAL LOCATION.  
EXCELLENT AREA FOR AM-PM CLINIC.



The order of presentation for most disorders is a description of current knowledge concerning its pathophysiology and pathogenesis, which includes both in vitro and in vivo studies, neuropathological data, and clinical aspects. The author does a good job in pinpointing areas of controversy and in presenting promising areas for new investigation. There is an excellent blending of basic laboratory and clinical work. The author's considerable clinical experience is reflected in the discussion of various entities. This is supported by well-chosen tables and illustrations.

All of the major problems in perinatal neurology can be found, including malformations, hypoxic encephalopathy, intracranial hemorrhage, metabolic disorders, infection, trauma, and the effects of maternal medication.

There are few criticisms of this book. It might be helpful to most readers if the discussions of the causes of hydrocephalus were together, and some might take opposing views about the management of certain disorders. Others might wish to see a shorter presentation, but that would be difficult to do and still include what Dr Volpe has included.

This is a valuable reference and is highly recommended for all persons with a concern for neurologic care of the newborn — the pediatrician, the neonatologist, and the pediatric neurologist and neurosurgeon.

Harris D. Riley, Jr., MD  
Oklahoma City

**The Physician in Literature.** By Norman Cousins. Philadelphia: W. B. Saunders Company, 1982, Pp 477.

This is an anthology of poems, short stories, essays, and portions of important writings from the world literature. In the introduction, the editor, Norman Cousins, prominent man of letters now associated with UCLA School of Medicine, speaks to his belief that literature has an important role in medicine. He further outlines the importance of a broad liberal arts or humanistic background in medical education and examines the interrelationship of art and science.

The book is divided into twelve major sections, each dealing with a particular theme or point of view. The titles of some of the sections are "Research and Serendipity," "The Role of the Physician," "Quacks and Clowns," "Clinical Descriptions in Literature," "Doctors and Students," "Madness," "The Patient," and "An Enduring Tradition." The works of some fifty-one different authors, mostly British and Amer-

ican, are included. They range from Sir Francis Bacon and William Shakespeare to Ernest Hemingway and James Dickey. Several of the authors, including Oliver Wendell Holmes, Arthur Conan Doyle, Somerset Maugham, William Carlos Williams, and Hans Zinsser, are physicians. Each section of the book consists of several selections from the literature. The themes of the various sections vary widely, from descriptions of disease in literature to traditions in medicine.

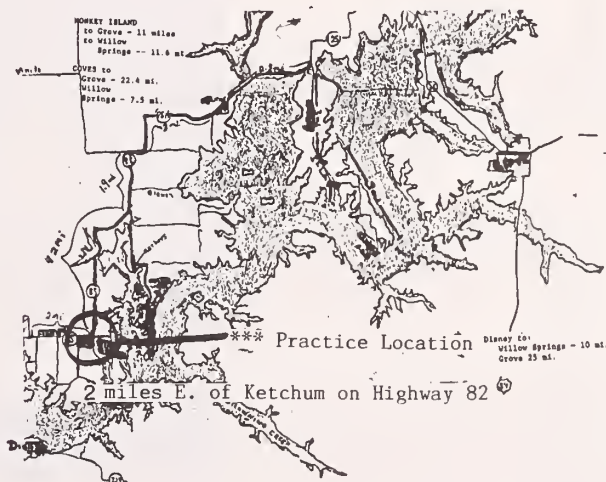
As might be expected, the sections vary in tempo and completeness. In some instances the portions chosen seem incomplete, and the impact of the selection is diffused. At least some of this fragmentation could have been avoided by choosing a smaller number of selections and treating them in greater depth.

Overall, *The Physician in Literature* is entertaining reading. It makes an important contribution in emphasizing the importance of the connection between medicine and literature.

Harris D. Riley, Jr., MD  
Oklahoma City

I NEED a mature associate to buy 1/2 ownership and share equal work/play hours on Grand Lake while maintaining skills. Prefer an internist or experienced family practitioner who can enjoy time spent with patients. Hospital privileges available. HELIPORT for rapid patient transfer on clinic grounds. Other subspecialists have intermittent consultations.

Call 1-918-782-9048.



(918) 782-9048



---

## MISCELLANEOUS ADVERTISEMENTS

---

Miscellaneous advertising is available at the rate of \$10 per month per vertical inch or any portion thereof (ie, 1-7 lines is \$10, 8-14 lines is \$20, etc). Rates are not prorated for fractions of an inch. One inch of space contains 7 lines of copy averaging 55 characters each. The first line of the ad will automatically be set in all capital letters and averages only 38 characters. Count every letter, space, and punctuation mark as a character.

Box numbers will be assigned upon request at no additional charge. When requesting a box number, the last line of the ad must read: Reply JOURNAL BOX 00, c/o OSMA. This will add 32 characters and must be included.

Ads can be set in all boldface type if requested, for an additional \$2 per month.

Typewritten copy is preferred. Otherwise, print very legibly in ink. Ads will not be accepted on the telephone. Be sure to indicate how many times the ad is to run, and for the JOURNAL's records, please include a name, address, and telephone number where you can be reached if necessary. Ads must be received by the first of the month preceding publication.

In writing your ad, remember that it will be read statewide; include complete address and/or telephone information. If discussing employment, be sure to specify whether you are seeking a position or trying to fill one.

Enclose payment with your ad and mail to: OSMA JOURNAL, 601 Northwest Expressway, Oklahoma City, OK 73118. OSMA members and state agencies will be invoiced upon request.

---

**PHYSICIANS NEEDED — FAMILY PRACTICE,** Orthopedist, Ob-Gyn, Internist/Oncologist, Dermatologist, Otolaryngologist and Podiatrist. 30-Physician Multispecialty Clinic/Ambulatory Surgery Center. Excellent benefits. Send CV and 3 references to Jeanne Bledsoe, Southern Plains Medical Center, 2222 Iowa, Chickasha, OK 73018, or phone 405-224-4853.

---

**AVAILABLE — Practice Opportunity,** equipment, and professional building. 159' frontage by 100' deep, on main street and highway. Building 2,050 square feet, brick over cement block. Clinic 1,200 square feet plus 850 square feet rented. Two hospitals within 15 miles, two nursing homes in community. Only fulltime physician in the community. Wide drawing area. Contact: T. P. Forrestal, DO, 711 Main Street, Comanche, OK 73529. 405/439-2318 or 405/439-6642.

---

**OFFICE SPACE FOR RENT IN ESTABLISHED** industrial clinic near St. Anthony Hospital, Oklahoma City. Lab & X-ray available. Will be able to make some referrals. Phone (405) 232-6144.

---

**FOR SALE — USED OFFICE EQUIPMENT — 3** exam tables (1) Ritter — Chairs — 2 metal filing cabinets — lights, etc. Excellent buy. For more information call owner at (405) 843-6566.

---

**TEXAS — NORTH OF DALLAS — IMMEDIATE FULL-**time and part-time positions in hospital-affiliated family practice clinic. Offering attractive incentive for purchase of clinic as practice. Beautiful resort area has stable patient population with great growth potential. Contact: Emergency Consultants, Inc., 2240 South Airport Road, Room 32, Traverse City, MI 49684; or call 1-800-253-1795 or in Michigan 1-800-632-3496.

---

**AVAILABLE — ACTIVE SOLO GENERAL MEDICINE** practice, new equipment, and skilled staff in rural N.E. Oklahoma near Tulsa. Office next to hospital. Guaranteed first year income. Excellent recreational resources. Reply JOURNAL Box 12, c/o OSMA.

---

**PHYSICIANS OF VARIOUS SPECIALTIES NEEDED** for temporary and permanent salaried positions throughout Oklahoma and adjoining states. ER and radiology physicians also needed. Janis Edwards, RN, National Health Service, 3300 N.W. 23rd, Oklahoma City, OK 73107, (405) 722-0921.

---

**FOR SALE — 4,000-SQUARE-FOOT PHYSICIAN'S OF-**ice building, 15 years old, one story, built by Marshall Erdman, and located across the street from the city's 100-bed hospital, in N.E. Oklahoma town of 17,000 serving a population of more than 45,000. The area is in need of OB-GYN (1 in town), GP-FP (3 in town), INT. MED. (3 going on 2 in town), and GEN. SURG. (2 in town). But, we have full-time ORTHO., UROL., RAD. (CAT scan, ultrasound, nuc. med.), PATH., and 24-hr. E.R. coverage. Available also, is one day a week consultation opportunities with Tulsa-based PUL. MED., CARD., ENT, ALLER., and GI. specialists. The hospital has 4 O.R.s and a cysto room, 2 delivery rooms, newborn nursery, and a 9-bed med-surg I.C.U. Lots of good opportunities here. Reply JOURNAL Box AA, c/o OSMA.

---

**67-YEAR-OLD RADIOLOGIST WISHES TO RETIRE.** Practice covers two rural hospitals, front range, S.E. Colorado. Spectacular home on 40 acres, stable, scenic views. Hunting, fishing, golfing, and skiing at hand. Home, practice (gross collections, \$175,000, 1985) available in one package. Interested parties contact Bill Townsend, United Farm Agency. Telephone 303-676-3426.

---

**ANESTHESIOLOGIST INTERESTED IN ESTABLISH-**ing a practice based on Obstetrics and Gynecology. Start up Financial Assistance available. Send CV to Medical Director, Box 205, Oklahoma City, OK 73102.

---

**PHOENIX, ARIZONA — TWO FAMILY PHYSICIANS** needed for two busy, established, family medicine practices. Physicians must be board certified/eligible. No fee is involved. Submit confidential CV to: Clarke & Associates, P.O. Box 17138, Phoenix, AZ 85011 or call (602) 266-7005.

---

**FOR SALE: HILLSIDE COUNTRY HOME — TREES** and fields — 150 mi. north of Dallas. 3 bedrooms. Garage apt. Swimming pool. Barn/tool house. 1½ baths. Phone (405) 298-2314 or (405) 298-3365 or reply JOURNAL Box 13, c/o OSMA.

---

# A special practice for specialists

If you're a surgeon or OB/GYN or other medical specialist, the Air Force may have a special practice for you.

What makes it special? You'll enjoy an excellent pay and benefits package. Your regular working hours will allow you to spend more time with your family. You'll receive 30 days of vacation with pay each year. And you will work with modern equipment and some of the most highly trained professionals in the world, serving your country and your patients. Now that's special!

**Find out just how special your practice can be.**

Contact:

M/Sgt. Mick Berger  
(405) 231-5247  
Call collect



**AIR**  
**FORCE**

# NOTICE

## TO ALL PLICO-INSURED PHYSICIANS

The 1986 PLICO professional liability insurance policy you received contains a special endorsement or requirement making attendance at an OSMA/PLICO-sponsored Loss Prevention Seminar **mandatory** at least once in every three years. If a physician has never attended a seminar, he or she must attend one during 1986. If a physician has not attended a program since 1983, they must attend this year, also. Any physician needing to attend in 1986, and failing to do so, will not be eligible for renewal of their insurance for calendar year 1987.

### SEMINAR ATTENDANCE MANDATORY

#### 1986 Seminar Schedule\*

Thursday, May 22	6-9 p.m.	Bennett Room, Baptist Hospital, <b>Oklahoma City</b> (This is a special program for <b>radiologists.</b> )
Saturday, May 24	2-5 p.m.	Oklahoma Conference Center (Was named "The Centre" and is located at 5901 N. May, <b>Oklahoma City.</b> )
Saturday, June 28	2-5 p.m.	Holiday Inn, <b>Woodward</b>
Wednesday, Sept 10	6-9 p.m.	<b>Lawton</b> Holiday Inn
Wednesday, Sept 17	6-9 p.m.	<b>Muskogee</b> Holiday Inn
Wednesday, Sept 24	6-9 p.m.	<b>McAlester</b> Holiday Inn
Wednesday, Oct 8	6-9 p.m.	<b>Enid</b> Ramada Inn
Wednesday, Oct 22	6-9 p.m.	Oklahoma Conference Center, <b>Oklahoma City</b>
Thursday, Oct 23	6-9 p.m.	<b>Tulsa</b> Sheraton Inn Skyline East

\*All PLICO insureds will receive detailed registration information for each of these seminars by direct mail.

---

#### LOSS PREVENTION SEMINAR REGISTRATION

Please register the following physician to attend the 1986 Loss Prevention Seminar indicated below:  
(PLEASE TYPE OR PRINT)

PHYSICIAN'S NAME: \_\_\_\_\_

ADDRESS: \_\_\_\_\_ CITY/STATE \_\_\_\_\_ ZIP \_\_\_\_\_

SEMINAR DATE AND CITY: \_\_\_\_\_

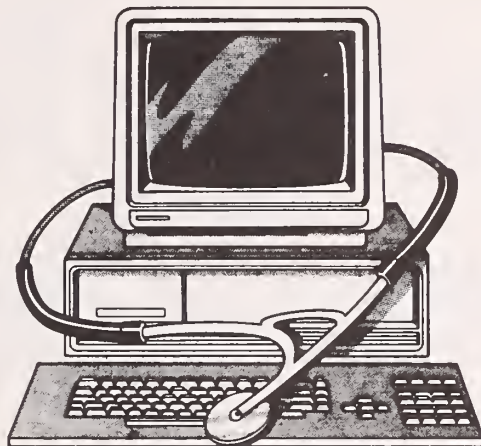
Mail form to OKLAHOMA STATE MEDICAL ASSOCIATION, 601 NW EXPRESSWAY, OKLAHOMA CITY, OK 73118.



# MANAGE YOUR OFFICE MORE EFFECTIVELY WITH THE MPM 1000 SYSTEM AVAILABLE THROUGH SOUTHERN MEDICAL ASSOCIATIONS PHYSICIANS' PURCHASING PROGRAM

Manage your office more effectively with the MPM 1000 System available through the Physicians' Purchasing Program.

Managing your office shouldn't be hard; however, with the current insurance requirements and



the impending Medicare changes looming on the horizon, it will get more difficult. You should call Curtis 1000 Information Systems or Southern Medical Association to find out how the MPM 1000 can help make your practice run more effectively.

## AVAILABLE ON IBM A/T

### MPM 1000 Simplifies Your Paperwork

You will be able to reduce the mountains of paperwork by using your MPM 1000 system to process all your insurance, complete your billing plus instantaneously sort and file necessary information.

### MPM 1000 Speeds Up Your Cash Flow

The MPM 1000 system will increase your daily bank deposits by processing all your insurance and patients' receivables quickly.

### MPM 1000 Improves Your Practice Management

With the MPM 1000 system you can easily and intelligently manage your practice with computer generated reports. Trends and problems are easily identified so you can take corrective action before they become serious.

### MPM 1000 Is A One Source Solution

The MPM 1000 is a one source solution. With your system you receive all hardware (IBM or Texas Instruments), software, complete five day training program and responsive after sale support.

### IBM PC/AT At Discount

Best of all, these systems are available through SMA Services, Inc., Physicians' Purchasing Program with substantial discounts on IBM and Texas Instrument equipment.

**FOR MORE INFORMATION**, please fill out the coupon below and mail it to Southern Medical Association, or for faster service call Southern Medical at (205) 945-1840 or Curtis 1000 Information Systems at 800-241-4780.

☐ **YES!** I would like more information on MPM 1000

My interests are: ☐ Immediate ☐ Long term ☐ Please contact me for a survey

I am a member of SMA ☐

Name (Please Print)

Address

City State Zip

Specialty Office Phone

Mail to: CURTIS 1000 INFORMATION SYSTEMS  
2296 Henderson Mill Road  
Suite 402  
Atlanta, Georgia 30345

# Protection against staff infection.

Protect employee health benefits with PLICO HEALTH. A remarkably cost-conscious comprehensive medical/hospitalization plan, PLICO HEALTH is offered by doctor-owned Physicians Liability Insurance Company. Designed by doctors, PLICO HEALTH is the only program created especially to meet the needs of doctors, staff and their families. At your convenience, one of our experienced insurance specialists will gladly provide you with details. For more information about our extensive, new dental plan, please give us a call.



**The Physicians Liability Insurance Company**  
P.O. Box 18171 • Oklahoma City, OK 73154 • 405/524-0801  
1-800/522-9219



YEARS

Thank you for your loyal support



**DYAZIDE<sup>®</sup>**

25 mg Hydrochlorothiazide/50 mg Triamterene/SKF

**SK&F CO.**



**On nitrates,  
but angina still  
strikes...**



# After a nitrate, add ISOPTIN<sup>®</sup> (verapamil HCl/Knoll)

**To protect your patients, as well as their quality of life,  
add Isoptin instead of a beta blocker.**

**F**irst, Isoptin not only reduces myocardial oxygen demand by reducing peripheral resistance, but also increases coronary perfusion by preventing coronary vasospasm and dilating coronary arteries — both normal and stenotic. These are antianginal actions that no beta blocker can provide.

Second, Isoptin spares patients the beta-blocker side effects that may compromise the quality of life.

With Isoptin, fatigue, bradycardia and mental depression are rare. Unlike beta blockers, Isoptin can safely be given to patients with asthma, COPD, diabetes or peripheral vascular disease. Serious adverse reactions with Isoptin are rare at recommended doses; the single most common side effect is constipation (6.3%).

Cardiovascular contraindications to the use of Isoptin are similar to those of beta blockers: severe left ventricular dysfunction, hypotension (systolic pressure <90 mm Hg) or cardiogenic shock, sick sinus syndrome (if no artificial pacemaker is present) and second- or third-degree AV block.

So, the next time a nitrate is not enough, add Isoptin... for more comprehensive antianginal protection without side effects which may cramp an active life style.



**ISOPTIN. Added  
antianginal protection  
without beta-blocker  
side effects.**



# ISOPTIN® (verapamil HCl/Knoll)

80 mg and 120 mg scored, film-coated tablets

**Contraindications:** Severe left ventricular dysfunction (see *Warnings*), hypotension (systolic pressure < 90 mm Hg) or cardiogenic shock, sick sinus syndrome (except in patients with a functioning artificial ventricular pacemaker), 2nd- or 3rd-degree AV block. **Warnings:** ISOPTIN should be avoided in patients with severe left ventricular dysfunction (e.g., ejection fraction < 30% or moderate to severe symptoms of cardiac failure) and in patients with any degree of ventricular dysfunction if they are receiving a beta blocker. (See *Precautions*.) Patients with milder ventricular dysfunction should, if possible, be controlled with optimum doses of digitalis and/or diuretics before ISOPTIN is used. (Note interactions with digoxin under *Precautions*.) ISOPTIN may occasionally produce hypotension (usually asymptomatic, orthostatic, mild and controlled by decrease in ISOPTIN dose). Elevations of transaminases with and without concomitant elevations in alkaline phosphatase and bilirubin have been reported. Such elevations may disappear even with continued treatment; however, four cases of hepatocellular injury by verapamil have been proven by rechallenge. Periodic monitoring of liver function is prudent during verapamil therapy. Patients with atrial flutter or fibrillation and an accessory AV pathway (e.g. W-P-W or L-G-L syndromes) may develop increased antegrade conduction across the aberrant pathway bypassing the AV node, producing a very rapid ventricular response after receiving ISOPTIN (or digitalis). Treatment is usually D.C.-cardioversion, which has been used safely and effectively after ISOPTIN. Because of verapamil's effect on AV conduction and the SA node, 1° AV block and transient bradycardia may occur. High grade block, however, has been infrequently observed. Marked 1° or progressive 2° or 3° AV block requires a dosage reduction or, rarely, discontinuation and institution of appropriate therapy depending upon the clinical situation. Patients with hypertrophic cardiomyopathy (IHSS) received verapamil in doses up to 720 mg/day. It must be appreciated that this group of patients had a serious disease with a high mortality rate and that most were refractory or intolerant to propranolol. A variety of serious adverse effects were seen in this group of patients including sinus bradycardia, 2° AV block, sinus arrest, pulmonary edema and/or severe hypotension. Most adverse effects responded well to dose reduction and only rarely was verapamil discontinued. **Precautions:** ISOPTIN should be given cautiously to patients with impaired hepatic function (in severe dysfunction use about 30% of the normal dose) or impaired renal function, and patients should be monitored for abnormal prolongation of the PR interval or other signs of excessive pharmacologic effects. Studies in a small number of patients suggest that concomitant use of ISOPTIN and beta blockers may be beneficial in patients with chronic stable angina. Combined therapy can also have adverse effects on cardiac function. Therefore, until further studies are completed, ISOPTIN should be used alone, if possible. If combined therapy is used, close surveillance of vital signs and clinical status should be carried out. Combined therapy with ISOPTIN and propranolol should usually be avoided in patients with AV conduction abnormalities and/or depressed left ventricular function. Chronic ISOPTIN treatment increases serum digoxin levels by 50% to 70% during the first week of therapy, which can result in digitalis toxicity. The digoxin dose should be reduced when ISOPTIN is given, and the patients should be carefully monitored to avoid over- or under-digitalization. ISOPTIN may have an additive effect on lowering blood pressure in patients receiving oral antihypertensive agents. Disopyramide should not be given within 48 hours before or 24 hours after ISOPTIN administration. Until further data are obtained, combined ISOPTIN and quinidine therapy in patients with hypertrophic cardiomyopathy should probably be avoided, since significant hypotension may result. Clinical experience with the concomitant use of ISOPTIN and short- and long-acting nitrates suggest beneficial interaction without undesirable drug interactions. Adequate animal carcinogenicity studies have not been performed. One study in rats did not suggest a tumorigenic potential, and verapamil was not mutagenic in the Ames test. **Pregnancy Category C:** There are no adequate and well-controlled studies in pregnant women. This drug should be used during pregnancy, labor and delivery only if clearly needed. It is not known whether verapamil is excreted in breast milk; therefore, nursing should be discontinued during ISOPTIN use. **Adverse Reactions:** Hypotension (2.9%), peripheral edema (1.7%), AV block: 3rd degree (0.8%), bradycardia: HR < 50/min (1.1%), CHF or pulmonary edema (0.9%), dizziness (3.6%), headache (1.8%), fatigue (1.1%), constipation (6.3%), nausea (1.6%), elevations of liver enzymes have been reported. (See *Warnings*.) The following reactions, reported in less than 0.5%, occurred under circumstances where a causal relationship is not certain: ecchymosis, bruising, gynecomastia, psychotic symptoms, confusion, paresthesia, insomnia, somnolence, equilibrium disorder, blurred vision, syncope, muscle cramp, shakiness, claudication, hair loss, macules, spotty menstruation. **How Supplied:** ISOPTIN (verapamil HCl) is supplied in round, scored, film-coated tablets containing either 80 mg or 120 mg of verapamil hydrochloride and embossed with "ISOPTIN 80" or "ISOPTIN 120" on one side and with "KNOLL" on the reverse side. Revised August, 1984 2385



**KNOLL PHARMACEUTICAL COMPANY**  
30 NORTH JEFFERSON ROAD, WHIPPANY, NEW JERSEY 07981

2406

## EMPLOYEES APPRECIATE THE PAYROLL SAVINGS PLAN.

JUST ASK THE  
PEOPLE AT THE  
BOEING COMPANY.

"My folks gave me a Bond for my birthday every year. Now I can do the same for my kids."

—Vaughn Hale



"It's certainly a painless way to save. The money comes directly out of my paycheck every two weeks."

—Florence Perry



"This is one way I can support my government and save at the same time."

—Douglas Scribner



U.S. Savings Bonds now offer higher variable interest rates and a guaranteed return. Your employees will appreciate that. They'll also appreciate your giving them the easiest, surest way to save.

For more information, write to: Steven R. Mead, Executive Director, U.S. Savings Bonds Division, Department of the Treasury, Washington, DC 20226.



**U.S. SAVINGS BONDS**  
Paying Better Than Ever

A public service of this publication.





# TULSA MAGNETIC IMAGING

Convenient Outpatient Setting  
Unsurpassed Quality Images  
Competitive Charges  
MRI-experienced Radiologists



**Tulsa Magnetic Imaging's  
.5 Tesla Superconductive  
Magnet offers:**

- *Greater Diagnostic Ability*
- *Multiple Views of  
Anatomical Structures*
- *Image Quality  
Far Superior to CT*

For further information  
or consultation, call  
**582-3608.**

Tulsa Magnetic Imaging  
1430 South Utica Avenue  
Tulsa, Oklahoma 74101



Willow View Hospital is the only private, non-profit hospital in Oklahoma dedicated solely to the treatment of psychiatric illnesses of all types, among all ages.

- 24 Hour Emergency Admissions
- 93 Inpatient Beds
- Outpatient Services
- Designated by the Department of Mental Health as an Examination and Detention Facility for Detention Patients
- Child/Adolescent Programs
- Adult Program
- Senior Adult Program
- Substance Abuse Program

Accredited by JCAH  
as a Child/Adolescent and  
Adult Psychiatric Hospital

Jay T. Shurley, M.D.  
Medical Director

#### MEDICAL STAFF

John C. Andrus, M.D.  
Janita M. Ardis, M.D.  
Nolen Armstrong, M.D.  
Hugh M. Conner, Jr., M.D.  
James A. Cox, M.D.  
Phillip E. Green, M.D.  
A. A. Hellams, M.D.  
Wolfgang K. Huber, M.D.  
R. Murali Krishna, M.D.  
Harald Krueger, M.D.  
Siavash Nael, M.D.  
Robert J. Outlaw, M.D.  
Larry M. Prater, M.D.  
Moorman Prosser, M.D.  
Joe G. Savage, M.D.  
William H. Scimeca, M.D.  
Jay T. Shurley, M.D.  
Harold G. Sleeper, M.D.  
John R. Smith, M.D.  
Bal G. Vad, M.D.  
Sally Varghese, M.D.  
Shreekumar S. Vinekar, M.D.  
Fred W. Weber, M.D.



## WILLOW VIEW HOSPITAL

2601 North Spencer Road 405/427-2441  
P.O. Box 11137  
Oklahoma City, Oklahoma 73136

For information or referral, contact the office  
of the administrator.

**CARDIOVASCULAR AND THORACIC SURGERY ASSOCIATES  
THE CARDIAC SURGEONS OF OKLAHOMA CITY, INC.**

**PROFESSIONAL STAFF**

William D. Hawley, MD  
James M. Hartsuck, MD

R. Darryl Fisher, MD  
Marvin D. Peyton, MD

Scott K. Lucas, MD

Diplomates of  
American Board of Surgery  
American Board of Thoracic and  
Cardiovascular Surgery

Specializing in  
Cardiac, Vascular  
and Thoracic Surgery

Office Hours 8:30 a.m. to 5:00 p.m.  
Monday through Friday  
With 24 Hour Consultation and Referral

**1-800-522-6755**

**(405) 946-0900**

**OFFICES**

3400 N.W. EXPRESSWAY, SUITE 520  
4200 WEST MEMORIAL RD., SUITE 805  
1044 S.W. 44TH, SUITE 520

OKC, OK 73112  
OKC, OK 73120  
OKC, OK 73109





# Timberlawn Psychiatric Hospital

- 206 Inpatient Beds
- Day Hospital
- Outpatient Psychiatric Services
- Department of Child and Adolescent Psychiatry

- Family Assessment Center
- Psychiatric Residency Program
- Psychiatric Evaluation

P.O. Box 11288 Dallas, Texas 75223  
214/381-7181

Established in 1917



**Specializing in the diagnosis  
and treatment of allergic diseases  
in adults and children.**

MAILING ADDRESS: P.O. Box 26827, Oklahoma City, OK 73126

## MAIN OFFICE

750 Northeast 13th Street  
Near the Oklahoma Health Center  
(2 Blocks East of Lincoln Blvd.)  
Oklahoma City, Oklahoma  
(405) 235-0040

## N.W. OKLAHOMA CITY OFFICE

Mercy Doctors Tower  
4200 W. Memorial Rd., Rm. 112  
Oklahoma City, Oklahoma  
(405) 235-0040

## NORMAN OFFICE

900 North Porter, Suite 600  
Norman, Oklahoma  
(405) 235-0040

Administrator:  
G. Keith Montgomery, MHA

George L. Winn, MD†  
Robert S. Ellis, MD†\*  
Lyle W. Burroughs, MD†\*  
Charles D. Haunschild, MD†\*  
James H. Wells, MD†\*  
John R. Bozalis, MD†\*  
James D. Lakin, PhD, MD†\*  
John S. Irons, MD†\*  
Warren V. Filley, MD†\*

Senior Consultants:  
George S. Bozalis, MD  
Vernon D. Cushing, MD†\*

† Diplomate American Board of Allergy and Immunology  
\* Diplomate American Board of Internal Medicine  
- Diplomate American Board of Pediatrics

Research Director:  
Richard A. Strecker, DrPh

# Shawnee Medical Center Clinic, Inc.

2801 N. SARATOGA / P.O. BOX 849 / SHAWNEE, OKLAHOMA 74801 / Phone: 405-273-5801

## ALLERGY

A. M. Bell, MD\*

## ANESTHESIOLOGY CONSULTANTS

Ellis Brown, MD\*

## DERMATOLOGY

Bert C. Frichot, III, MD\*

## GENERAL SURGERY

Frank H. Howard, MD\*  
Jerold D. Kethley, MD  
S. B. VanLandingham, MD\*

## INDUSTRIAL MEDICINE

A. M. Bell, MD  
Jake Jones, Jr., MD

## INTERNAL MEDICINE

Michael W. Butcher, MD  
Merle L. Davis, MD  
Larry D. Fetzer, MD  
Eldon V. Gibson, MD\*  
D. A. Mace, MD  
J. B. Jarrell, MD\*

## NEONATOLOGY

R. K. Mohan, MD

## OBSTETRICS, GYNECOLOGY

Dean W. Papageorge, MD  
Richard E. Jones, MD\*  
Stephen E. Trotter, MD\*

## ORTHOPEDIC SURGERY

T. A. Balan, MD, FAAOS\*  
R. M. Kamath, MD, MS\* (Ortho)  
S. M. Waingankar, MD, MS\* (Ortho)

## OTORHINOLARYNGOLOGY

S. Rishi, MD\*, MS, FACS

## PATHOLOGY CONSULTANT

David L. McBride, MD\*

## PEDIATRICS

A. M. Bell, MD\*  
Jake Jones, Jr., MD\*  
R. K. Mohan, MD\*

## RADIOLOGY CONSULTANTS

William Phillips, MD\*  
Robert G. Wilson, MD\*  
Cranfill K. Wisdom, MD\*

## UROLOGY

N. M. Kotecha, MD\*

## ADMINISTRATOR

W. J. Birney

\*Board Certified



# SOUTHERN PLAINS MEDICAL CENTER, P.C.

2222 Iowa • Chickasha, OK 73018 • (405) 224-4853

Route 3 • Box 124M • Tuttle, OK 73089 • (405) 381-2391

## FAMILY PRACTICE

J.W. McDaniel, MD  
J.O. Wood, Jr., MD  
Stuart Meyer, MD

## INTERNAL MEDICINE

W.S. Harrison, MD  
D.L. Stehr, MD  
R.S. Davis, MD  
Don R. Hess, MD  
Vernon A. Vix, MD  
Randall L. Jenkins, MD

## CARDIOLOGY

Joe T. Bledsoe, MD

## GASTROENTEROLOGY

C.K. Su, MD

## PEDIATRICS

R.E. Herndon, MD  
E. Ron Orr, MD  
J.E. Freed, MD  
M.P. Escobar, MD  
Donald F. Haslam, PhD, MD

## OBSTETRICS AND

## GYNECOLOGY

Nancy W. Dever, MD  
Alan J. Weedn, MD

## NEUROLOGY

Andrew Gin, MD

## GENERAL &

## VASCULAR SURGERY

Linda M. Johnson, MD  
Virginia L. Harr, MD  
Myra Campbell, PA

## THORACIC &

## VASCULAR SURGERY

Paul B. Loh, MD

## OPHTHALMOLOGY

John R. Gearhart, MD

## ANESTHESIOLOGY

T. Gowlikar, MD  
Gideon Lau, MD  
M.M. Vaidya, MD

## PHYSICAL MEDICINE & REHABILITATION

Kumudini Vaidya, MD

## UROLOGY

K.T. Varma, MD  
John P. Ross, MD

## ORTHOPEDIC SURGERY

W.T. Morris, MD  
Keith W. Riggins, MD  
W.M. Ohl, PA

## ACCUTE CARE /

## INDUSTRIAL MEDICINE

C.R. Gibson, MD

## RADIOLOGY (Consulting)

Medical Radiology, Inc.

## CLINICAL PSYCHOLOGY

James M. Ross, PhD

## SPEECH PATHOLOGY

Colette Ellis, MEd, CCC

## ALLERGY

W.S. Harrison, MD  
R.E. Herndon, MD

## OTHER SERVICES:

AMBULATORY SURGERY FACILITY  
For Outpatient Surgical Procedures

## Fit for Life WELLNESS PROGRAM



- Weight Reduction
- Nutrition
- Stress Management
- Smoking Cessation
- Fitness

## BREAST SELF EXAM (BSE)

## LEARNING CENTER

Individual instruction on  
the technique of breast  
self examination for women.

## EDUCATION PROGRAMS

Medical topics of interest  
to the public.

## ADMINISTRATION

James W. Loy



ACCREDITED - ACCREDITATION ASSOCIATION FOR AMBULATORY HEALTH CARE, INC.



## GLASS-NELSON CLINIC

### INDUSTRIAL MEDICINE

GLEN L. BERKENBILE, MD  
GEORGE R. KRIETMEYER, MD  
DONALD W. BOBEK, MD

### PRE-EMPLOYMENT

BOB HOWLAND, PA

### PEDIATRICS

HUGH C. GRAHAM, JR., MD  
JOEL K. GIST, MD  
WILLIAM P. SIMMONS, MD

### RADIOLOGY

WILLIAM K. HICKS, MD

### GENERAL SURGERY

ROBERT S. PERRYMAN, MD  
FRANKLIN S. NELSON, MD

### INTERNAL MEDICINE & EXECUTIVE PHYSICALS

WILLIAM F. EWING, MD  
BOYD O. WHITLOCK, MD  
RICHARD H. REID, MD  
R. A. SEARCY, MD  
PHILIP W. PERRYMAN, JR., MD

### ADMINISTRATION

FRED R. STAFFORD  
GALE CLARK

1923 East 21st Street Box 52218 • TULSA, OKLAHOMA 74152 • PHONE (918) 742-3341

## MULTI-SPECIALTY CLINICAL HEALTHCARE FOR SOUTHEASTERN OKLAHOMA

### INTERNAL MEDICINE

STEVEN D. ATWOOD, M.D.  
CHARLES K. HOLLAND, M.D.  
R. KERN JACKSON, M.D.  
KENNETH R. MILLER, M.D.  
LEROY M. MILTON, M.D.

### GASTROENTEROLOGY

JAMES A. GOLLA, M.D.

### OTOLARYNGOLOGY

DONALD E. CRAWLEY, M.D.  
SAMUEL E. DAKIL, M.D.

### SURGERY

WILLIAM G. BLANCHARD, M.D.  
DAVID MacMILLAN, M.D.

### ALLERGY

PAUL S. THOMAS, M.D.

### PEDIATRICS

DELTA W. BRIDGES, JR., M.D.  
THURMAN SHULLER, M.D.  
PAUL S. THOMAS, M.D.

### RADIOLOGY

BRUCE H. BROWN, M.D.

### FAMILY MEDICINE

JOHN B. COTTON, M.D.  
WILLIAM E. GUPTON, M.D.  
STEPHEN D. SWANK, M.D.  
LARRY D. LEWIS, M.D.

### OBSTETRICS-GYNECOLOGY

ROBERT G. CATES, M.D.  
DAVID L. DOYLE, M.D.  
L. DWAIN DOYLE, M.D.  
W. RILEY MURPHY, JR., M.D.

### ADMINISTRATOR

PAUL BISHOP

# The McAlester Clinic, Inc.

1401 E. VAN BUREN AVE • P.O. BOX 908 • McALESTER OK 74502 • 918 426-0240





# MEDICAL ARTS CLINIC OF ARDMORE, INC.

921 Fourteenth Avenue Northwest  
Ardmore, Oklahoma 73401

## General Surgery

THORNTON KELL, MD, FACS

\*TOM SPARKS, MD, FACS

\*WILFRED S. GAUTHIER, MD, FACS

## Obstetrics and Gynecology

†MICHAEL B. BEASON, MD

## Radiology (Consultants)

\*MICHAEL W. BROWN, MD

\*JAMES A. CHAPMAN, MD

## Pathology (Consultant)

\*CARL A. SCHWEERS, MD

## Internal Medicine

J. HOBSON VEAZEY, MD

\*CLIFFORD LORENTZEN, MD, FACP

\*DAVID D. ROSE, MD

\*JOE R. HAMILL, MD

\*KEVIN H. REED, MD

\*MY Q. TRAN, MD

## Gastroenterology

†MY Q. TRAN, MD

## Administrator

ROGER H. HUGHES

Phone: A/C 405-223-5311

\*Specialty Board Diplomate

†Specialty Board Eligible

# Orthopedic & Arthritis Center

McBRIDE CLINIC, Inc.

1111 North Dewey / Oklahoma City, Oklahoma / 232-0341

## DEPARTMENT OF ORTHOPEDICS

\*Marvin K. Margo, MD, FACS

\*James P. Bell, MD, FACS

\*Stephen Tkach, MD, FACS

\*Joseph F. Messenbaugh III, MD, FACS

\*J. Patrick Evans, MD, FACS

\*Edwin E. Rice, MD, FACS

\*Warren G. Low, MD

\*Thomas C. Howard, III, MD

David H. Holden, MD

## DEPARTMENT OF ARTHRITIS

John A. Blaschke, MD

Mary L. Duffy Honick, MD

\*Richard J. Hess, MD, FACP

\*Jon W. Blaschke, MD

\*R. Eugene Arthur, MD

## DEPARTMENT OF OCCUPATIONAL and INDUSTRIAL MEDICINE

Jack W. Parrish, MD

\*Specialty Board Diplomate

## MANAGEMENT SERVICES

James A. Hyde, Administrator



## ORTHOPEDIC ASSOCIATES, INC.

3301 N.W. 50th  
Oklahoma City, Oklahoma 73112  
(405) 947-0911

David R. Brown, MD  
Ralph E. Payne, Jr., MD  
J. Charles Monnet, MD  
Michael O. Williams, MD

David A. Flesher, MD  
Nathan E. Bradley, MD  
Thomas H. Flesher III, MD

Diplomates of American Board of Orthopaedic Surgery

**Sports Medicine**  
**Arthroscopic Surgery**

**Surgery of the Spine**  
**Total Joint Replacement**



## THE ARTHRITIS CLINIC

Lloyd G. McArthur, PhD, MD

Winfred L. Medcalf, MD  
Robert C. Troop, PhD, MD

207 C Street NW

Ardmore, Ok. 73401

Phone (405) 223-5180

*A group of laboratories  
affiliated to better serve  
the medical profession*



---

SOUTHERN OKLAHOMA  
PATHOLOGY ASSOCIATES, INC.  
Ada, Oklahoma

---

MEDICAL ARTS LABORATORY  
Oklahoma City, Oklahoma

---

FAIRVIEW PATHOLOGY  
CONSULTANTS, INC.  
Ponca City, Oklahoma

---

SMITHKLINE BIO-SCIENCE  
LABORATORIES  
St. Louis, Missouri

---

PATHOLOGY ASSOCIATES  
OF LAWTON  
Lawton, Oklahoma

---

SOUTHEASTERN MEDICAL  
LABORATORIES, INC.  
McAlester, Oklahoma

---

MIDWEST CITY  
PATHOLOGY, INC.  
Midwest City, Oklahoma

---

PATHOLOGY, INC.  
Stillwater, Oklahoma

---

**MEDICAL ARTS LABORATORY  
BIO-SCIENCE SERVICE CENTERS**

FOR INFORMATION, CALL  
800 / 942-3514 or  
405 / 239-7111

## OKLAHOMA UROLOGY CENTER

CHARLES L. REYNOLDS, JR., MD, INC.

Urology-Genitourinary Surgery  
Diseases Kidney-Bladder-Prostate  
Female-Male Children & Adults  
Micro Surgery for Infertility  
Prosthetic Surgery for Impotency  
Urinary Incontinence

**3131 NORTHWEST EXPRESSWAY  
SUITE 201  
OKLAHOMA CITY, OKLAHOMA 73112**

TOLL FREE (800) 522-8668  
OFFICE (405) 843-5761 RESIDENCE (405) 842-6420  
IF NO ANSWER (405) 523-1999



## Oklahoma Spine/Pain Clinic

Multi-disciplinary approach  
to evaluation and treatment  
of acute or chronic musculoskeletal pain.

William N. Harsha, MD  
Diplomate American Board Orthopaedic Surgery

Doctors Medical Building  
Oklahoma City, Oklahoma 73112  
5700 N.W. Grand Blvd.  
(405) 943-9561



## OKLAHOMA HAND SURGERY CENTER, INC.



Carlos A. Garcia-Moral, MD, FACS

405/232-3210

711 Stanton L. Young Boulevard, Suite 510      Oklahoma City, Ok 73104

## OKLAHOMA LUNG FUNCTION LABORATORY, INC.

R.J. Dougherty, MD

- |  |  |
|--|--|
| <input type="checkbox"/> Oxygen saturation by oximetry<br><i>(To meet Medicare criteria for<br/>continued reimbursement for home<br/>oxygen use)</i> | <input type="checkbox"/> Clinical spirometry     |
| <input type="checkbox"/> Arterial blood gas analysis   | <input type="checkbox"/> Lung volumes            |
|  | <input type="checkbox"/> Diffusing capacity      |
|  | <input type="checkbox"/> Diagnostic skin testing |

235-3338

1111 North Lee, Pasteur Building 224

235-1701

## CENTRAL OKLAHOMA AMBULATORY SURGICAL CENTER, INC.

W. Edward Dalton, MD, FACS      Paul Silverstein, MD, FACS      J. Michael Kelly, MD, FACS  
Plastic, Reconstructive & Cosmetic Surgery; Surgery of the Hand & Congenital Deformities;  
Oncologic Surgery of the Head and Neck, Burn Surgery

3301 Northwest 63rd Street, Oklahoma City, Okla. 73116  
(405) 842-9732

Board Certified in Plastic Surgery  
Board Certified in General Surgery

## AEROSPACE MEDICINE

CLYDE A. LYNN, BA, MPH, MD  
Board Certified, Aerospace Medicine  
Fellow, American College of Preventive Medicine  
Flight Surgeon, US Army and Navy  
Commercial Pilot and Flight Instructor, Instrument and Multi-engine  
Referrals for Medical Certification of Pilots Accepted  
by Appointment

1317 Brookhaven Blvd. Norman, OK 73069      Senior Aviation Examiner      (405) 329-2625  
FAA NO. 07448-1

## ALLERGY

Northwest Medical Center      Suite 602  
NORTHWEST ALLERGY CLINIC, INC.

John L. Davis, M.D.  
3330 N.W. 56th  
Oklahoma City, Oklahoma 73112  
405 843-6619

JAMES A. MURRAY, MD, INC.  
Diagnosis and Treatment of Allergic Diseases  
Adults and Children

JAMES A. MURRAY, MD  
Fellow American Academy of Allergy  
Fellow American College of Allergists  
Diplomate American Board of Allergy and Immunology

Suite 101      6465 South Yale Avenue  
Warren Professional Building      (918) 492-0484  
Tulsa, Oklahoma 74177

OKLAHOMA ALLERGY CLINIC, INC.  
Specializing in the Diagnosis and Treatment of Allergic Disease

George L. Winn, MD†	John R. Bozalis, MD†*
Robert S. Ellis, MD†*	James D. Lakin, PhD, MD†*
Lyle W. Burroughs, MD†*	John S. Irons, MD†*
Charles D. Haunschild, MD†	Warren V. Filley, MD†*
James H. Wells, MD†*	

Senior Consultants: George S. Bozalis, MD; Vernon D. Cushing, MD†\*

† Diplomate American Board of Allergy and Immunology  
\* Diplomate American Board of Internal Medicine  
° Diplomate American Board of Pediatrics

Office Address:	Mail Address:	NW OKC Office:	Norman Office:
750 NE 13th St	PO Box 26827	4200 W Memorial	900 N Porter
Okla City, OK	Okla City	Room 112	Suite 600
405-235-0040	OK 73126	405-235-0040	405-235-0040

## CARDIOVASCULAR

### CARDIOVASCULAR ASSOCIATES

Adult Cardiovascular Diseases  
Cardiac Catheterization, Aortography and Selective Coronary Arteriography  
Coronary and Peripheral Angioplasty

Telephone Electrocardiography (24 hr. service), Treadmill  
Effort Tolerance, Hypertensive Evaluation

\*J.J. Donnell, MD 947-2556      \*G.L. Honick, MD 943-8428

\*J.L. Bressie, MD 946-0568      A.F. Elliott, MD 943-8421

A.S. Dahr, MD 947-2321      Gary Worcester, MD 943-4134

\*Jan Voda, MD 947-1297      Stanley A. Horst, MD 946-0606

\*Certified by the American Board of Cardiovascular Disease  
Doctors Medical Building

8th Floor 5700 N.W. Grand Blvd.      Oklahoma City, Oklahoma 73112

### CARDIOVASCULAR CLINIC

Wm. Best Thompson, MD	Ronald H. White, MD	W.H. Oehlert, MD
Galen P. Robbins, MD	William J. Fors, MD	Charles F. Bethea, MD
Williams S. Myers, MD		Fred E. Lybrand, MD
Lawrence M. Higgs, MD		Mel Clark, MD

CARDIOVASCULAR DISEASES  
Cardiac catheterization, aortography and coronary arteriography  
Coronary and Peripheral angioplasty, telephone electrocardiography  
and echocardiography  
Nuclear cardiology and Treadmill effort tolerance

CARDIOVASCULAR BUILDING  
3300 Northwest 56th Oklahoma City, Okla. 73112      Telephone 947-3341

## DERMATOLOGY

RONALD W. GILCHRIST, JR., MD  
Diseases and Malignancies of the Skin  
X-Ray and CO<sub>2</sub> Laser Therapy      632-5565  
Oklahoma City, OK 73109      3500 South Western

### SKIN & SKIN CANCER CENTER, INC.

C. Jack Young, MD

Radium Therapy    Hemangiomas    X-Ray Therapy

CLINIC BUILDING      3434 N.W. 56th  
OKLAHOMA CITY, OKLAHOMA      946-5678

## OPHTHALMOLOGY

JAMES L. DUNAGIN, JR., MD  
Diseases and Surgery of the Eye  
Diplomate American Board of Ophthalmology  
6th and Washington      918-426-1432      McAlester, Oklahoma 74501

John W. Huneke, MD, FACS, Inc.  
Diseases and Surgery of the Eye  
Certified by the American Board of Ophthalmology  
Phone 332-1880    1414 Arlington    Suite 2300    Ada, Oklahoma 74820

JAMES B. MILLS, MD      232-4222

Surgery and Diseases of the Eye  
JAY C. JOHNSTON, MD      232-5543  
Lacrimal Surgery, Dacryocystorhinostomy, Jones Tubes

Certified by the American Board of Ophthalmology  
425 NW 11th Street      Oklahoma City 73103

V. JERRY SHEPARD, MD  
Diseases and Surgery of the Eye  
Certified by the American Board of Ophthalmology  
3400 N.W. 56th St. Suite G-2      Phone 946-3327      Oklahoma City 73112

## ORTHOPEDICS

### DUNCAN REGIONAL ORTHOPAEDIC ASSOCIATES, INC.

THOMAS J. EISER, MD  
ROBERT M. SIMPSON, MD  
ORTHOPAEDIC SURGERY & SURGERY OF THE HAND  
DIPLOMATES AMERICAN BOARD OF ORTHOPAEDIC SURGERY  
FELLOWS, AMERICAN ACADEMY OF ORTHOPAEDIC SURGEONS

2815 W. Elk  
OFFICE (405) 252-3400      DUNCAN, OKLAHOMA 73533

### ORTHOPEDIC SURGERY AFFILIATES, INC.

1044 S.W. 44th  
Oklahoma City, Oklahoma 73109  
405-631-7444

Dale R. Butler, MD, FACS      G. David Casper, MD  
J.A. Rosacker, MD

HOUSHANG SERADGE, MD, FICS  
Diplomate American Board of Orthopaedic Surgery  
Hand and Reconstructive Microsurgery

1044 S.W. 44th Street, Suite 620  
Oklahoma City, Oklahoma 73109  
Phone (405) 631-4263

## ORTHOPEDICS (continued)

JOHN RAYMOND STACY, MD, FACS  
Diplomate American Board of Orthopedic Surgery  
Orthopedic and Fracture Surgeon  
415 N.W. 12th St. Oklahoma City, Oklahoma 235-6315

## OTOLARYNGOLOGY HEAD AND NECK SURGERY

Oklahoma Otolaryngology Associates  
RAYMOND O. SMITH, JR., MD, FACS  
Head and Neck Surgery  
Facial Plastic and Reconstructive Surgery  
4200 West Memorial Road, Suite 606  
Oklahoma City, Oklahoma 73120  
Phone 405 755-1930

## PEDIATRIC SURGERY

E. IDE SMITH, MD\* WM. P. TUNELL, MD\* DENNIS J. HOELZER, MD\*

940 NE 13th Street, Oklahoma City, Oklahoma 73104  
Office: 405-271-4356 After hours: 405-523-6739 (then enter your phone no.)  
\*American Board of Surgery — Special Competence in Pediatric Surgery

## PSYCHIATRY

LARRY PRATER, MD  
Practice Limited to Psychiatry  
Suite 318 Classen Professional Bldg. 232-5453/272-7155  
1110 Classen Boulevard Oklahoma City, Oklahoma 73106

PSYCHIATRY  
Robert J. Outlaw, MD, FAPA  
R. Murali Krishna, MD, MAPA  
Diplomates of American Board of Psychiatry and Neurology in Psychiatry  
Shree S. Vinekar, MD, FAACP  
Diplomate of American Board of Psychiatry and Neurology  
in Psychiatry and Child Psychiatry  
John C. Andrus, MD, MAPA  
Diplomate of American Board of Psychiatry and Neurology in Psychiatry  
Thurman E. Coburn, PhD, Licensed Clinical Psychologist  
David Schwartz, ACSW, Clinical Psychiatric Social Worker  
Donna Smela, ACSW, Clinical Psychiatric Social Worker  
Suite 308 Physicians and Surgeons Building  
1211 North Shartel, Oklahoma City 73103  
(405) 272-0734

## JAY TALMADGE SHURLEY, MD

Life Fellow, American Psychiatric Association;  
Charter Fellow, American College of Psychiatrists

Emeritus Professor of Psychiatry & Behavioral Sciences  
University of Oklahoma College of Medicine  
Consultant in Neuropsychiatry, SLEEP DISORDERS CENTER, Presbyterian Hospital

Diagnosis, Management & Treatment of  
DISORDERS OF SLEEPING, WAKING, & DREAMING  
(Emphasis on Narcolepsy, Sleep Walking, Nightmares)

6406 "A" North Santa Fe  
Oklahoma City, OK 73116 (405) 840-3793

HAROLD G. SLEEPER, MD, FAPA  
Diplomate American Board of Psychiatry  
and Neurology in Psychiatry  
Adult and Adolescent Psychiatry  
2801 Parklawn Drive, Suite 505  
Midwest City, Oklahoma 73110  
(405) 733-8244

## PULMONARY DISEASE

### PULMONARY ASSOCIATES

STEPHEN N. ADLER, MD TIMOTHY L. GRODE, MD  
Diplomates  
American Board of Internal Medicine  
American Board of Internal Medicine - Pulmonary Disease

Pulmonary Medicine  
Pulmonary Function and Methacholine Testing  
Pulmonary Artery (Swan-Ganz) Catheterization  
Fiberoptic Bronchoscopy  
Lung Needle Biopsy  
Critical Care Medicine

Mercy Doctors Tower 4200 Memorial Road  
Oklahoma City, OK 73120 (405) 755-4290

### RAYMOND J. DOUGHERTY, MD

Diplomate American Board of Pulmonary Disease  
Practice Limited to Pulmonary Disease

Special Interest in Adult and Adolescent Asthma

204 Pasteur Building 235-1701  
Oklahoma City, Oklahoma 73103

### NORMAN K. IMES, MD

### DENNIS M. PARKER, MD

Diplomates American Board of Internal Medicine  
American Board of Internal Medicine - Pulmonary Disease  
Consultants in Diseases of the Chest  
Fiberoptic Bronchoscopy  
Pulmonary Function Evaluation  
Intensive Care Medicine

3330 N.W. 56 Street (405) 949-9400  
Oklahoma City, Oklahoma 73112

## RADIOLOGY

### CHET BYNUM, MD

### GLENNA YOUNG, MD

Fluoroscopy  
Xeromammography

### DIAGNOSTIC RADIOLOGY

Tomography  
Ultra Sonography

### WHOLE BODY CT SCANNING

13301 N. Meridian Bldg. 300  
Oklahoma City, Oklahoma 73120  
(405) 752-0186

1125 N. Porter  
Norman, Okla. 73071  
(405) 364-1071

### RADIOLOGY ASSOCIATES, INC.

JAMES T. BOGGS, MD MICHAEL A. SARTIN, MD  
ROBERT SUKMAN, MD, FACR RALF E. TAUPMANN, MD  
WILLIAM R. ALBRACHT, MD GARY G. ROBERTS, MD  
ROGER B. COLLINS, MD JOHN R. OWEN, MD  
GEORGE BEN CARTER, MD HAROLD D. DAVIDSON, MD  
RICHARD B. PRICE, MD, FACR, DABNM JAY A. HAROLDS, MD, DABNM

Diplomates American Board of Radiology  
X-Ray-Diagnosis including Ultra Sonography, Xeromammography,  
Radiation Therapy — Nuclear Medicine — CAT Scanning  
Digital Subtraction

204 Medical Tower Bldg. 848-7741  
400 Physicians Prof. Bldg. 943-9646  
700 Doctors Medical Bldg. 946-9923

Baptist Medical Center 949-3202  
Deaconess General Hospital 946-5581  
206 N.W. Med. Ctr. Bldg. 946-8999



RADIOLOGIC SPECIALTIES, LTD  
4045 Northwest 64th Street, Suite 125  
Oklahoma City, Oklahoma 73116

Practice Limited To Whole Body CT Scanning

V.C. Tisdal III, MD (405) 848-0075 Rebecca Goen Tisdal, MD

Diplomates American Board of Radiology

## SURGERY

James E. Cheatham, Jr., MD  
3400 N.W. Expressway, Suite 607  
Oklahoma City, OK 73112  
948-7272  
Specializing in Open Heart Surgery

ROBERT B. HOWARD, MD, FACS  
Certified American Board of Surgery  
Practice Limited to General Surgery and Diseases of the Thyroid Gland  
544 Pasteur Medical Bldg. Phone 235-2341 Oklahoma City

MICHAEL E. REIF, MD  
Diplomate American Board of Surgery  
Fellow American College of Surgery  
General and Peripheral Vascular Surgery  
708 Mercy Doctors Tower By Appointment 755-1750  
4200 West Memorial Road Oklahoma City, OK 73120 After Hours 232-8861

## SURGERY, COLON AND RECTAL

ROBERT J. CAPEHART, MD  
2325 South Harvard Suite 306  
Tulsa, Oklahoma 74114  
(918) 744-5817  
Practice Limited To Colon & Rectal Surgery and Colonoscopy

## SURGERY, HAND

Patrick T. Sterbank, PA  
Physician Associate  
HOUSHANG SERADGE, MD, FICS  
Diplomate American Board of Orthopaedic Surgery  
Hand and Reconstructive Microsurgery  
1044 S.W. 44th Street, Suite 620  
Oklahoma City, Oklahoma 73109  
Phone (405) 631-4263 631-HAND

## SURGERY, RECONSTRUCTIVE AND PLASTIC

PARAMJIT S. BAJAJ, MD, FACS  
FRCS (England), FRCS (Edinburgh)  
Certified American Board of Plastic Surgery  
Maxillofacial and Cosmetic Surgery  
Surgery of the Hand  
1110 N. Classen Blvd. Suite 304 235-6671  
Oklahoma City, Okla. 73106

LEONARD H. BROWN, MD  
Diplomate American Board of Surgery  
Diplomate American Board of Plastic Surgery  
Plastic and Reconstructive Surgery  
Cosmetic Surgery  
6913 S. Canton Tulsa, Oklahoma 74136 492-3964

WILLIAM J. FORREST, MD

Plastic and Reconstructive Surgery  
Surgery of the Hand  
3400 N.W. Expressway Oklahoma City 947-8760

HERBERT M. KRAVITZ, MD, FACS

Diplomate American Board of Plastic Surgery  
Reconstructive, Cosmetic and Cleft Palate Surgery  
Office (405) 946-2694 2620 Northwest Expressway  
Oklahoma City, Oklahoma

## UROLOGY

GENE T. BAUMGARNER, MD, FACS  
Diplomate of the American Board of Urology  
Mercy Doctors Tower  
4200 West Memorial Road  
Oklahoma City, Oklahoma 73120 (405) 755-3723

A. de QUEVEDO, MD, Inc.  
Diplomate of the American Board of Urology  
Suite 606  
1211 N. Shartel Oklahoma City, Oklahoma 73103 232-1333

PHILIP D. DIGGDON, MD, FACS  
Diplomate of the American Board of Urology  
312 Warren Prof. Bldg, 6465 S. Yale, Tulsa, OK  
Office: (918) 492-6322 Home: (918) 492-1143  
Same day service

CLARK HYDE, MD 1110 N. Classen, #205  
Pediatric and Adult Urology  
2801 Parklawn Dr., #300 Oklahoma City, OK 73106  
Midwest City, OK 73110 (405) 232-0273  
(405) 737-5667

BARNEY J. LINES, MD, FACS  
1211 N. Shartel, Suite 208  
Oklahoma City, Okla. 73101  
Phone 235-0315  
2801 Parklawn Dr., Suite 300  
Midwest City, Okla. 73110  
Phone 737-3538  
Practice Limited to Urology  
Diplomate American Board of Urology

JOSEPH D. PARKHURST, MD, FACS  
Diplomate American Board of Urology  
2345 N. Tompkins 495-6134  
Bethany, OK 73008 1214-D S. 11th  
Yukon, OK 73099

CHARLES L. REYNOLDS, JR., MD, FACS, FICS  
DIPLOMATE of the AMERICAN BOARD of UROLOGY  
DISEASES of the KIDNEY, BLADDER, and PROSTATE

3131 NORTHWEST EXPRESSWAY  
OKLAHOMA CITY, OKLAHOMA 73112  
OFFICE (405) 843-5761

RESIDENCE (405) 842-6420 IF NO ANSWER (405) 523-1999

1110 Classen Blvd. JAMES R. WENDELKEN, MD 2801 Parklawn  
Oklahoma City, OK Pediatric and Adult Urology Midwest City, OK  
73106 73110  
Telephone (405) 232-0273

PHILLIP H. WINSLOW, MD, FACS  
Diplomate American Board of Urology  
Hours by Appointment Medical Plaza  
(405) 765-7620 123 Patton Drive  
Answering Service: (405) 765-5826 Ponca City, OK 74601

**Professional card listings are available to OSMA members. The cards are sold in vertical increments of one-half inch at the rate of \$50.00 per half inch per year.**

## INDEX TO ADVERTISERS

Allied Nursing Care .....	314
The Arthritis Clinic .....	366
Ayerst Laboratories ( <i>Inderal LA, Inderide LA</i> ) .	301-304
BMC Care Advantage .....	300
The Cardiac Surgeons of Oklahoma City, Inc. ....	361
Central Oklahoma Ambulatory Surgical Center, Inc. ....	368
Copper Lake .....	298
Curtis 1000 Information Systems .....	351
Dista Products ( <i>Keflex</i> ) .....	308
Edmond Medical Plaza .....	340
Elk City Community Hospital .....	332, 337
C. L. Frates & Co., Inc. ....	342
Glass-Nelson Clinic .....	364
Harsha Orthopedic, Inc. ....	367
A. F. Hoge, Jr., MD .....	347
Knoll Pharmaceutical Company ( <i>Isoptin</i> ) ....	356-358
Marion Laboratories ( <i>Cardizem</i> ) .....	353, 354
McAlester Clinic .....	364
Medical Arts Clinic of Ardmore .....	365
Medical Arts Laboratory .....	367
Oklahoma Allergy Clinic .....	362
Oklahoma Cancer Institute .....	307
Oklahoma City Clinic .....	IFC
Oklahoma Hand Surgery Center, Inc. ....	368
Oklahoma Lung Function Laboratory .....	368
Oklahoma Urology Center .....	367
Orthopedic & Arthritis Center .....	365
Orthopedic Associates .....	366
PLICO Health .....	352
PLICO Loss Prevention Seminars .....	350
Prodata Medical Systems .....	297
Professional Office Management .....	305
Rehabilitation Institute of Oklahoma .....	338
Roche Products, Inc. ( <i>Dalmane</i> ) .....	IBC, BC
RTS Replacement Service, Inc. ....	334
Shawnee Medical Center Clinic, Inc. ....	363
SmithKline & Beckman ( <i>Dyazide</i> ) .....	355
Southern Plains Medical Center, Inc. ....	363
Stillwater National Bank .....	306
Timberlawn Psychiatric Hospital .....	362
Tulsa Adjustment Bureau, Inc. ....	341
Tulsa Magnetic Imaging .....	359
US Air Force .....	349
The Upjohn Company ( <i>Motrin 800</i> ) .....	309
VA Medical Center, Muskogee .....	343
G. D. Williamson, MD .....	346
Willow View Hospital .....	360
Windy Meadow Farm .....	313
Wyeth Laboratories ( <i>WyTensin</i> ) .....	310-312



### OFFICERS of the OKLAHOMA STATE MEDICAL ASSOCIATION

Norman L. Dunitz, MD, President;  
M. Joe Crosthwait, MD, President-Elect;  
Ray V. McIntyre, MD, Vice-President; Raymond L. Cornelison, Jr., MD, Secretary-Treasurer; Larry L. Long, MD, Speaker, House of Delegates; Robert G. Perryman, MD, Vice-Speaker, House of Delegates; Thomas N. Lynn, Jr., MD, Chairman, Board of Trustees; Rolie E. Rhodes, Jr., MD, Vice-Chairman, Board of Trustees; and Elvin M. Amen, MD, Immediate Past President.

## INSTRUCTIONS FOR AUTHORS

### Contributions

Articles submitted for publication, including Annual Meeting papers, become the sole property of the JOURNAL and must not have been published elsewhere. The Editorial Board reserves the right to edit any material submitted. Manuscripts must be typewritten, double-spaced, and submitted in duplicate. Receipt of manuscripts will be acknowledged, and unpublished manuscripts will be returned. The JOURNAL does not assume responsibility for the statements or opinions of any contributor.

### Style

All manuscripts should adhere to the style adopted by the American Medical Association as illustrated in *JAMA* and detailed in the AMA's *Manual for Authors & Editors*. Footnotes, bibliographies, and legends for illustrations should be typewritten, double-spaced, on separate sheets. References are to be listed in the order of their appearance in the article.

### Illustrations

Illustrations other than the author's will not be accepted for publication unless accompanied by written permission from the original source. Illustrations should be labeled with the author's name and must be numbered in the order in which they are referred to in the article. The quality of all illustrations must be in keeping with the quality of the magazine.

### News

Readers are encouraged to submit news items of interest to Oklahoma physicians. Where dates of meetings, etc, are important, please remember that each issue closes on the first day of the *preceding* month and reaches subscribers in the latter half of the month of publication.

### Reprints

Authors will receive reprint order forms from the Transcript Press, 222 East Eufaula, Norman, Oklahoma 73069, prior to publication of their articles. Other requests for reprints must be made to the Transcript Press within 30 days after publication.

### Back Issues

Microfilm copies of back issues of the JOURNAL can be purchased from University Microfilms International, 300 North Zeeb Road, Ann Arbor, Michigan 48106.

# Oklahoma State Medical Association Auxiliary 1986-87 Officers



**Kelsey Walters**  
(Roland A. III)  
Oklahoma City  
President



**Julie Weedn**  
(Robert)  
Duncan  
President-Elect



**Ellie Idstrom**  
(Mark)  
Oklahoma City  
First Vice-President



**Maureen Bynum**  
(Chester)  
Norman  
Second Vice-President



**Donna Hromas**  
(Dick)  
Enid  
Recording Secretary



**Cheryl Tytle**  
(Tim)  
Oklahoma City  
Treasurer



**Jan Storms**  
(Bruce)  
Chickasha  
Treasurer-Elect

## Regional Officers

**Becky Buster**  
(Frank)  
Cheyenne  
Region I  
Vice-President

**Loyce Funnell**  
(James)  
Oklahoma City  
Region II  
Vice-President

**Barbara Lewis**  
(Terry)  
Enid  
Region II  
Vice-President-Elect

**Susie Houtman**  
(Daniel)  
Bartlesville  
Region III  
Vice-President

**Christine Zollinger**  
(William Kerr, Jr.)  
Tulsa  
Region III  
Vice-President-Elect

**Ginny Morris**  
(William)  
Chickasha  
Region IV  
Vice-President

**Jeannie Montague**  
(C. Burt)  
Lawton  
Region IV  
Vice-President-Elect

**Deborah Borkon**  
(William)  
Ada  
Region V  
Vice-President

**Susan Paddock**  
(Gary)  
Ada  
Region V  
Vice-President-Elect



## THE LAST WORD

■ **More than 350 patients who had undergone** radial keratotomy, new eye surgery to correct near-sightedness, were surveyed by UCLA School of Public Health researchers one year after the procedure to determine whether or not they were satisfied with results. Only 10% registered dissatisfaction, while 42% said they were moderately satisfied, and 48% said they were very satisfied, according to Linda B. Bourque, PhD, and colleagues writing in the *Archives of Ophthalmology*. Part of the PERK (Prospective Evaluation of Radial Keratotomy) study, 12% of the patients reported "a lot of trouble with fluctuating vision" before surgery and 34% reported trouble after surgery. Patients were generally satisfied with the results," researchers say.

■ **A new technique using endoscopic laser therapy** to relieve malignant esophageal obstruction offers significant and safe relief, according to a report from Boston University School of Medicine in the *Archives of Surgery*. In a controlled study, the new technique offered rapid completion of therapy (1.4 treatments over 2.2 days) "without sacrificing safety," say Joseph J. Pietrafitta, MD, and Richard M. Dwyer, MD. Patients who are candidates for curative resections but who are nutritionally depleted now can have their obstructions relieved within 48 to 72 hours, allowing them to eat, the researchers say. "Nutritional depletion can then be corrected before operation. . . . Endoscopic laser therapy is an efficient, cost-effective method of palliation of malignant esophageal obstruction," the researchers conclude.

■ **The Task Force of the Physician Assistant Advisory Committee** of the Oklahoma Board of Medical Examiners will hold a public hearing to discuss a possible rule change to allow a physician's assistant to prescribe controlled and noncontrolled drugs. The hearing will be at 9:00 AM on June 24, 1986, in the boardroom at the office of the Oklahoma Board of Medical Examiners. Any written comments or drafts of rules on this subject must be submitted by 5:00 PM, June 10, 1986, in order to be considered by the Task Force Committee. Correspondence should be directed to Robert W. Baker, Associate Director, OSMA, 601 Northwest Expressway, Oklahoma City, OK 73118. You are invited to attend the hearing and address the committee. All oral presentation, comments, and suggestions are welcome. In the meantime, questions may be directed to Mr Baker or to the following members of the Task Force Committee:

Donald G. Bevers, PA, 1501 SE 19, Edmond, OK 73013; Dan P. Fox, PA Program, OUHSC, PO Box 26901, Oklahoma City, OK 73190; G. Barry Robbins, DO, 2149 SW 59, Oklahoma City, OK 73119; or Roger Whittaker, 8928 Markwell Ave, Oklahoma City, OK 73132.

■ **The Office of Continuing Medical Education** at the University of Oklahoma College of Medicine is presenting the following courses next month: June 4-6, Symposium of Obstetrics and Gynecology: Infertility and Reproductive Health Care Issues; June 6-8, Thirty-Third Annual James F. Hammarsten Pulmonary Disease Conference (Western Hills Lodge, Wagoner); and June 20, The Jack Hough Lectureship and Visiting Professor Program. For details contact Magdalen De Bault, Associate Director, CME, OU College of Medicine, Room 164E, LB, PO Box 26901, Oklahoma City, OK 73190.

■ **Two members of the Oklahoma State Medical Association Auxiliary** have been appointed to national committee positions with the AMA Auxiliary. Mary Ann Deen (Mrs Gordon), Ada, immediate past president of the OSMAA, will serve a one-year term on the AMAA Membership Committee. She will be responsible for directing membership recruitment activities in the ten-state Southern Region. Sherry Strebel (Mrs Gary F.), Oklahoma City, will chair the AMAA Committee on Legislation and serve as the AMAA representative on the AMA Council on Legislation.

■ **Don P. Wilson, MD; Nancy J. Carpenter, PhD;** and John H. Holcombe, MD, have been named recipients of the JOURNAL's Charlotte S. Leebron Memorial Trust Award for 1985. The award goes to the physician(s) whose scientific paper was deemed most worthy among those published in the JOURNAL during the year. Drs Wilson and Carpenter are with the Children's Medical Center in Tulsa, and Dr Holcombe is with Oklahoma Children's Memorial Hospital in Oklahoma City. Their winning article, chosen by the Editorial Board at their annual meeting in March, is entitled "Turner Syndrome: Clinical Investigations and Review." It appeared in the February 1985 issue of the JOURNAL. The award was presented May 8 at the OSMA's Annual Meeting in Tulsa. □

EXCERPTS FROM A SYMPOSIUM  
"THE TREATMENT OF SLEEP DISORDERS"

... highly effective  
for both sleep induction and  
sleep maintenance

Sleep Laboratory Investigator  
Pennsylvania

... onset of action is  
rapid... provides sleep with  
no rebound effect to agitate the  
patient the following day

Psychiatrist  
California

... appears to have  
the best safety record of any  
of the benzodiazepines

Psychiatrist  
California

After 15 years, the experts still concur about the continuing value of Dalmane (flurazepam HCl/Roche). It provides sleep that satisfies patients... and the wide margin of safety that satisfies you.

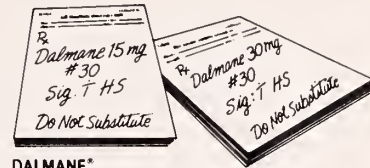
The recommended dose in elderly or debilitated patients is 15 mg. Contraindicated in pregnancy.

**DALMANE**<sup>®</sup>  
brand of  
flurazepam HCl/Roche <sup>®</sup>  
**sleep that satisfies**

15-mg/30-mg  
capsules



**References:** 1. Kales J, et al: *Clin Pharmacol Ther* 12:691-697, Jul-Aug 1971. 2. Kales A, et al: *Clin Pharmacol Ther* 18:356-363, Sep 1975. 3. Kales A, et al: *Clin Pharmacol Ther* 19:576-583, May 1976. 4. Kales A, et al: *Clin Pharmacol Ther* 32:781-788, Dec 1982. 5. Frasi JD Jr, DeLucchi MR: *J Am Geriatr Soc* 27:541-546, Dec 1979. 6. Dement WC, et al: *Behav Med*, pp. 25-31, Oct 1978. 7. Kales A, Kales JD: *J Clin Psychopharmacol* 3:140-150, Apr 1983. 8. Tennant FS, et al: Symposium on the Treatment of Sleep Disorders, Teleconference, Oct 16, 1984. 9. Greenblatt DJ, Allen MD, Shader RI: *Clin Pharmacol Ther* 21:355-361, Mar 1977.



**DALMANE**<sup>®</sup>  
brand of  
flurazepam HCl/Roche <sup>®</sup>

**Before prescribing, please consult complete product information, a summary of which follows:**

**Indications:** Effective in all types of insomnia characterized by difficulty in falling asleep, frequent nocturnal awakenings and/or early morning awakening, in patients with recurring insomnia or poor sleeping habits, in acute or chronic medical situations requiring restful sleep. Objective sleep laboratory data have shown effectiveness for at least 28 consecutive nights of administration. Since insomnia is often transient and intermittent, prolonged administration is generally not necessary or recommended. Repeated therapy should only be undertaken with appropriate patient evaluation.

**Contraindications:** Known hypersensitivity to flurazepam HCl; pregnancy. Benzodiazepines may cause fetal damage when administered during pregnancy. Several studies suggest an increased risk of congenital malformations associated with benzodiazepine use during the first trimester. Warn patients of the potential risks to the fetus should the possibility of becoming pregnant exist while receiving flurazepam. Instruct patients to discontinue drug prior to becoming pregnant. Consider the possibility of pregnancy prior to instituting therapy.

**Warnings:** Caution patients about possible combined effects with alcohol and other CNS depressants. An additive effect may occur if alcohol is consumed the day following use for nighttime sedation. This potential may exist for several days following discontinuation. Caution against hazardous occupations requiring complete mental alertness (e.g., operating machinery, driving). Potential impairment of performance of such activities may occur the day following ingestion. Not recommended for use in persons under 15 years of age. Withdrawal symptoms rarely reported, abrupt discontinuation should be avoided with gradual tapering of dosage for those patients on medication for a prolonged period of time. Use caution in administering to addiction-prone individuals or those who might increase dosage.

**Precautions:** In elderly and debilitated patients, it is recommended that the dosage be limited to 15 mg to reduce risk of oversedation, dizziness, confusion and/or ataxia. Consider potential additive effects with other hypnotics or CNS depressants. Employ usual precautions in severely depressed patients, or in those with latent depression or suicidal tendencies, or in those with impaired renal or hepatic function.

**Adverse Reactions:** Dizziness, drowsiness, lightheadedness, staggering, ataxia and falling have occurred, particularly in elderly or debilitated patients. Severe sedation, lethargy, disorientation and coma, probably indicative of drug intolerance or overdosage, have been reported. Also reported: headache, heartburn, upset stomach, nausea, vomiting, diarrhea, constipation, GI pain, nervousness, talkativeness, apprehension, irritability, weakness, palpitations, chest pains, body and joint pains and GU complaints. There have also been rare occurrences of leukopenia, granulocytopenia, sweating, flushes, difficulty in focusing, blurred vision, burning eyes, faintness, hypotension, shortness of breath, pruritus, skin rash, dry mouth, bitter taste, excessive salivation, anorexia, euphoria, depression, slurred speech, confusion, restlessness, hallucinations, and elevated SGOT, SGPT, total and direct bilirubins, and alkaline phosphatase; and paradoxical reactions, e.g., excitement, stimulation and hyperactivity.

**Dosage:** Individualize for maximum beneficial effect. *Adults* 30 mg usual dosage; 15 mg may suffice in some patients. *Elderly or debilitated patients:* 15 mg recommended initially until response is determined.

**Supplied:** Capsules containing 15 mg or 30 mg flurazepam HCl.



Roche Products Inc.  
Manati, Puerto Rico 00701



# #1 FOR SLEEP

After more than 15 years of use, it's #1 for sleep that satisfies. Patients are satisfied because they fall asleep fast and stay asleep till morning.<sup>1-8</sup> And *you're* satisfied by the exceptionally wide margin of safety.<sup>7-9</sup> As always, caution patients about driving or drinking alcohol.

Please see preceding page for summary of product information.

**DALMANE<sup>®</sup>**  
brand of  
flurazepam HCl/Roche <sup>®</sup>  
**sleep that satisfies**



EX  
THE NY ACADEMY OF MEDICI  
2 EAST 103RD ST  
NEW YORK NY 10029





# JOURNAL

OKLAHOMA STATE MEDICAL ASSOCIATION  
JUNE 1986



---

**CARDIOLOGY**

Charles W. Cathey, M.D.  
Charles W. Robinson, Jr., M.D.  
Thomas R. Russell, M.D.  
Paul C. Houk, M.D.  
Stanley G. Rockson, M.D.

---

**CARDIOVASCULAR  
THORACIC  
SURGERY**

Edward R. Munnell, M.D.  
R. Nathan Grantham M.D.  
Paul J. Kanaly, M.D.

---

**CLINICAL PSYCHOLOGY**

Lucien D. Rose, Ph.D.

---

**DERMATOLOGY****MOHS SURGERY**

William J. Sahl, Jr., M.D.  
Michael D. John, M.D.

---

**OTOLARYNGOLOGY****HEAD AND NECK SURGERY**

C. Joseph Wine, M.D.  
Joseph E. Leonard, M.D.  
Willard B. Moran, Jr., M.D.

---

**ENDOCRINOLOGY - DIABETES**

James L. Males, M.D.  
Ronald P. Painton, M.D.  
Jonathan L. Davis, M.D.

---

**GASTROENTEROLOGY**

Malcolm G. Robinson, M.D.  
David A. Neumann, M.D.  
Gretchen A. McCoy, M.D.  
Mark H. Mellow, M.D.

---

**GENERAL SURGERY**

Frank G. Gatchell, M.D.  
Jay P. Cannon, M.D.

---

**HEMATOLOGY - ONCOLOGY**

Ralph G. Ganick, M.D.  
Mark E. King, M.D.

---

**AMBULATORY CARE**

Kent C. Hensley, M.D.  
Leslie A. Arneson, M.D.

---

**INFECTIOUS DISEASES**

Daniel J. Sexton, M.D.  
Clifford G. Wlodaver, M.D.

---

**INTERNAL MEDICINE**

W.W. Rucks, Jr., M.D.  
William S. Pugsley, M.D.  
Donald G. Preuss, M.D.  
Earl S. Elliott, Jr., M.D.  
Brian P. Levy, M.D.  
Charles D. Arnold, M.D.  
Richard H. Dykstra, M.D.

---

**OPHTHALMOLOGY**

James T. Quinlan, M.D.

---

**OBSTETRICS AND GYNECOLOGY**

John W. Records, M.D.  
Schales L. Atkinson, M.D.  
Roger D. Quinn, M.D.  
Thomas R. Bryant, M.D.  
Ronald E. Hempling, M.D.  
Laura L. Mackie, M.D.  
John D. Dachauer, M.D.

---

**ORTHOPEDIC SURGERY**

J. Patrick Livingston, M.D.  
Gene L. Muse, M.D.

---

**PEDIATRICS**

James E. Mayes, Jr., M.D.  
Hal B. Vorse, M.D.  
William J. Kruse, M.D.  
Gary D. McGann, M.D.  
Mickey E. Crittenden, M.D.  
Don L. Wilber, M.D.  
Charles A. (Tony) Leveridge, M.D.  
David H. Cheatham, M.D.

---

**PEDIATRIC NEUROLOGY**

Marc Hille, M.D.

---

**PULMONARY DISEASE**

William W. Cook, M.D.  
Mark S. Fixley, M.D.  
Steven R. Smith, M.D.

---

**RADIATION THERAPY**

Stephen E. Acker, M.D.

---

**RADIOLOGY**

Melvin C. Hicks, M.D.  
J. Kent Chesnut, M.D.  
Alan M. Effron, M.D.  
Howard G. Daniel, M.D.  
Robyn L. Birdwell, M.D.  
Carol V. Sheldon, M.D.  
Bert R. Carollo, M.D.

---

**RHEUMATOLOGY**

William T. Tatum, Jr., M.D.

---

**UROLOGY**

Donald D. Albers, M.D.  
William F. Barnes, M.D.  
Richard E. Herlihy, M.D.

---

**EXECUTIVE DIRECTOR**

A. Wayne Coventon, M.D.

---

**DIABETES  
MANAGEMENT  
CENTER**

Patient Education  
by Referral

---

**NUTRITION  
COUNSELING**

Patient Education  
by Referral

---

**ACCREDITED**

Accreditation Association  
for Ambulatory  
HealthCare, Inc.

# Oklahoma City Clinic



701 Northeast 10th Street  
Oklahoma City, Oklahoma 73104

*Multiple Specialty Clinic*



Telephone 271-2700

1-800-522-0224



# Let Us "Balance" Your Books

Some physicians think keeping business accounts in balance is a magic trick. But — like the gymnast on a balance beam — your office manager can keep your books in balance with a little computer equilibrium.

At Prodata, we know the right computer system can improve your cash flow and reduce office paperwork. Our system is the only one to offer **all** of the following:

- complete automation of office collections
- electronic processing of insurance claims
- patient recall and follow-up
- scheduling of appointments
- customized software packages for all specialties and every size of practice
- total on-site training, support and service
- lease/purchase available
- **a written buy-back guarantee.**

Prodata Medical Systems — the next best thing to an office manager with ten arms!

Let us "balance" your books.

**Prodata**  
medical systems

One Broadway Center 100 NW 63rd Suite 100  
Oklahoma City, OK 73116 (405) 840-0461

Endorsed by M.D. Physicians, Inc., as its sole recommended vendor for computer hardware and software.



# I Feel Like a Prisoner In My Own Office!



If you're being held captive in a jail built of paper work and personnel problems, you need rescued by the professionals. Professional Office Management is the logical answer for doctors who want to spend their time examining patients, not ledger books.

POM staff are experts in medical office administration, helping keep your office and your cash flow running smoothly. With a pardon from POM, you're free to concentrate on providing each patient with quality care and reducing office overhead at the same time!

**POM – your key to independence and peace of mind.**

**pom**

**Professional Office Management**

1110 N. Classen Blvd.  
Suite 100  
Oklahoma City, OK 73106  
(405) 232-7059

# EDITORIAL BOARD

MARK R. JOHNSON, MD  
*Editor-in-Chief*

HARRIS D. RILEY, JR, MD  
*Editor*

DONALD L. BRAWNER, MD  
*Editor*

# STAFF

DAVID BICKHAM  
*OSMA Executive Director*

M. MICHAEL SULZYCKI  
*Director of Communications*

SUSAN RECORDS HARRISON  
*Managing Editor*

# JOURNAL

OKLAHOMA STATE MEDICAL ASSOCIATION

JUNE 1986

VOL. 79, No. 6

## EDITORIAL

My Best Wishes ..... 387  
MARK R. JOHNSON, MD

President's Page ..... 388  
NORMAN L. DUNITZ, MD

## SCIENTIFIC

Infant Mortality in Oklahoma: Risk Factors  
Associated with Neonatal and Postneonatal  
Mortality, 1975-1982 ..... 389  
JAMES C. DUKE, MS; DICK LORENZ, MSPH; and  
SARA REED DEPERSIO, MD, MPH

Surgical Management of Peripheral Nerve Injuries ..... 398  
GHAZI M. RAYAN, MD

Endoscopic Laser Therapy for Gastrointestinal  
Disorders, Part II: Gastrointestinal Hemorrhage Not  
Associated with Peptic Ulcer Disease (Second of four parts) ..... 403  
MARK H. MELLOW, MD

## NEWS ..... 407

Surgery for epilepsy now in Oklahoma City . . . Hospitals  
fight for survival . . . Program seeks recipients of AIDS-  
tainted blood products . . . Physicians failing to diagnose  
drug abuse . . . PID hits one million women a year . . .  
Murine typhus endemic in south Texas . . . Endometriosis  
risks linked to menstrual cycles . . . Shock-wave lithotripsy  
95% effective in one session

## DEPARTMENTS

State Department of Health .....	406	Index to Advertisers .....	448
In Memoriam .....	419	Instructions for Authors .....	448
Reaction Time .....	420	The Last Word .....	450
Book Shop .....	420		
Miscellaneous Adv. . . .	442		

The JOURNAL (ISSN 0030-1876) is the official publication  
of the Oklahoma State Medical Association and is  
published monthly under the direction of the  
OSMA Board of Trustees. Editorial office is at  
601 Northwest Expressway, Oklahoma City, OK 73118.  
Printed by the Transcript Press, 222 East  
Eufaula Street, Norman, OK 73069. Second class  
postage paid at Oklahoma City, OK 73125.

Subscription to the JOURNAL is included in membership  
fees. Others subscriptions are \$10.00 per year (\$28.00  
foreign). Back issues are \$3.00 per copy, subject to  
availability, or can be obtained on microfilm from  
University Microfilms International, 300 North Zeeb  
Road, Department PR, Ann Arbor, MI 48106.

The JOURNAL does not assume responsibility for opinions  
expressed by the authors. Products and services  
advertised in the JOURNAL are neither endorsed nor  
warranted by the Oklahoma State Medical Association.

Copyright © 1986 by the Oklahoma State Medical  
Association.

POSTMASTERS: Send all change of address notices to  
601 Northwest Expressway, Oklahoma City, OK 73118.

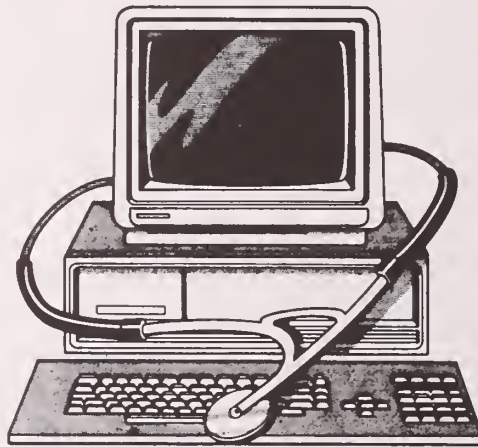
The JOURNAL of the Oklahoma State Medical  
Association (USPS 285-000)

Cover art by  
Graphic Art Center, Oklahoma City

# MANAGE YOUR OFFICE MORE EFFECTIVELY WITH THE MPM 1000 SYSTEM AVAILABLE THROUGH SOUTHERN MEDICAL ASSOCIATIONS PHYSICIANS' PURCHASING PROGRAM

Manage your office more effectively with the MPM 1000 System available through the Physicians' Purchasing Program.

Managing your office shouldn't be hard; however, with the current insurance requirements and



the impending Medicare changes looming on the horizon, it will get more difficult. You should call Curtis 1000 Information Systems or Southern Medical Association to find out how the MPM 1000 can help make your practice run more effectively.

## AVAILABLE ON IBM A/T

### MPM 1000 Simplifies Your Paperwork

You will be able to reduce the mountains of paperwork by using your MPM 1000 system to process all your insurance, complete your billing plus instantaneously sort and file necessary information.

### MPM 1000 Speeds Up Your Cash Flow

The MPM 1000 system will increase your daily bank deposits by processing all your insurance and patients' receivables quickly.

### MPM 1000 Improves Your Practice Management

With the MPM 1000 system you can easily and intelligently manage your practice with computer generated reports. Trends and problems are easily identified so you can take corrective action before they become serious.

### MPM 1000 Is A One Source Solution

The MPM 1000 is a one source solution. With your system you receive all hardware (IBM or Texas Instruments), software, complete five day training program and responsive after sale support.

### IBM PC/AT At Discount

Best of all, these systems are available through SMA Services, Inc., Physicians' Purchasing Program with substantial discounts on IBM and Texas Instrument equipment.

**FOR MORE INFORMATION**, please fill out the coupon below and mail it to Southern Medical Association, or for faster service call Southern Medical at (205) 945-1840 or Curtis 1000 Information Systems at 800-241-4780.

☐ **YES!** I would like more information on MPM 1000

My interests are: ☐ Immediate ☐ Long term ☐ Please contact me for a survey  
I am a member of SMA ☐

Name (Please Print) \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_

State \_\_\_\_\_

Zip \_\_\_\_\_

( ) \_\_\_\_\_

Specialty \_\_\_\_\_

Office Phone \_\_\_\_\_

Mail to: CURTIS 1000 INFORMATION SYSTEMS  
2296 Henderson Mill Road  
Suite 402  
Atlanta, Georgia 30345



Before prescribing, see complete prescribing information in SK&F CO. literature or *PDR*. The following is a brief summary.

**WARNING**

This drug is not indicated for initial therapy of edema or hypertension. Edema or hypertension requires therapy titrated to the individual. If this combination represents the dosage so determined, its use may be more convenient in patient management. Treatment of hypertension and edema is not static, but must be reevaluated as conditions in each patient warrant.

**Contraindications:** Concomitant use with other potassium-sparing agents such as spironolactone or amiloride. Further use in anuria, progressive renal or hepatic dysfunction, hyperkalemia. Pre-existing elevated serum potassium. Hypersensitivity to either component or other sulfonamide-derived drugs.

**Warnings:** Do not use potassium supplements, dietary or otherwise, unless hypokalemia develops or dietary intake of potassium is markedly impaired. If supplementary potassium is needed, potassium tablets should not be used. Hyperkalemia can occur, and has been associated with cardiac irregularities. It is more likely in the severely ill, with urine volume less than one liter/day, the elderly and diabetics with suspected or confirmed renal insufficiency. Periodically, serum  $K^+$  levels should be determined. If hyperkalemia develops, substitute a thiazide alone, restrict  $K^+$  intake. Associated widened QRS complex or arrhythmia requires prompt additional therapy. Thiazides cross the placental barrier and appear in cord blood. Use in pregnancy requires weighing anticipated benefits against possible hazards, including fetal or neonatal jaundice, thrombocytopenia, other adverse reactions seen in adults. Thiazides appear and triamterene may appear in breast milk. If their use is essential, the patient should stop nursing. Adequate information on use in children is not available. Sensitivity reactions may occur in patients with or without a history of allergy or bronchial asthma. Possible exacerbation or activation of systemic lupus erythematosus has been reported with thiazide diuretics.

**Precautions:** The bioavailability of the hydrochlorothiazide component of 'Dyazide' is about 50% of the bioavailability of the single entity. Theoretically, a patient transferred from the single entities of triamterene and hydrochlorothiazide may show an increase in blood pressure or fluid retention. Similarly, it is also possible that the lesser hydrochlorothiazide bioavailability could lead to increased serum potassium levels. However, extensive clinical experience with 'Dyazide' suggests that these conditions have not been commonly observed in clinical practice. Angiotensin-converting enzyme (ACE) inhibitors can elevate serum potassium; use with caution with 'Dyazide'. Do periodic serum electrolyte determinations (particularly important in patients vomiting excessively or receiving parenteral fluids, and during concurrent use with amphotericin B or corticosteroids or corticotropin [ACTH]). Periodic BUN and serum creatinine determinations should be made, especially in the elderly, diabetics or those with suspected or confirmed renal insufficiency. Cumulative effects of the drug may develop in patients with impaired renal function. Thiazides should be used with caution in patients with impaired hepatic function. They can precipitate coma in patients with severe liver disease. Observe regularly for possible blood dyscrasias, liver damage, other idiosyncratic reactions. Blood dyscrasias have been reported in patients receiving triamterene, and leukopenia, thrombocytopenia, agranulocytosis, and aplastic and hemolytic anemia have been reported with thiazides. Thiazides may cause manifestation of latent diabetes mellitus. The effects of oral anticoagulants may be decreased when used concurrently with hydrochlorothiazide; dosage adjustments may be necessary. Clinically insignificant reductions in arterial responsiveness to norepinephrine have been reported. Thiazides have also been shown to increase the paralyzing effect of nondepolarizing muscle relaxants such as tubocurarine. Triamterene is a weak folic acid antagonist. Do periodic blood studies in cirrhotics with splenomegaly. Antihypertensive effects may be enhanced in post-sympathectomy patients. Use cautiously in surgical patients. Triamterene has been found in renal stones in association with the other usual calculus components. Therefore, 'Dyazide' should be used with caution in patients with histories of stone formation. A few occurrences of acute renal failure have been reported in patients on 'Dyazide' when treated with indomethacin. Therefore, caution is advised in administering nonsteroidal anti-inflammatory agents with 'Dyazide'. The following may occur: transient elevated BUN or creatinine or both, hyperglycemia and glycosuria (diabetic insulin requirements may be altered), hyperuricemia and gout, digitalis intoxication (in hypokalemia), decreasing alkali reserve with possible metabolic acidosis. 'Dyazide' interferes with fluorescent measurement of quinidine. Hypokalemia is uncommon with 'Dyazide', but should it develop, corrective measures should be taken such as potassium supplementation or increased dietary intake of potassium-rich foods. Corrective measures should be instituted cautiously and serum potassium levels determined. Discontinue corrective measures and 'Dyazide' should laboratory values reveal elevated serum potassium. Chloride deficit may occur as well as dilutional hyponatremia. Concurrent use with chlorpropamide may increase the risk of severe hyponatremia. Serum PBI levels may decrease without signs of thyroid disturbance. Calcium excretion is decreased by thiazides. 'Dyazide' should be withdrawn before conducting tests for parathyroid function. Thiazides may add to or potentiate the action of other antihypertensive drugs. Diuretics reduce renal clearance of lithium and increase the risk of lithium toxicity.

**Adverse Reactions:** Muscle cramps, weakness, dizziness, headache, dry mouth; anaphylaxis, rash, urticaria, photosensitivity, purpura, other dermatological conditions; nausea and vomiting, diarrhea, constipation, other gastrointestinal disturbances; postural hypotension (may be aggravated by alcohol, barbiturates, or narcotics). Necrotizing vasculitis, paresthesias, icterus, pancreatitis, xanthopsia and respiratory distress including pneumonitis and pulmonary edema, transient blurred vision, sialadenitis, and vertigo have occurred with thiazides alone. Triamterene has been found in renal stones in association with other usual calculus components. Rare incidents of acute interstitial nephritis has been reported. Impotence has been reported in a few patients on 'Dyazide', although a causal relationship has not been established.

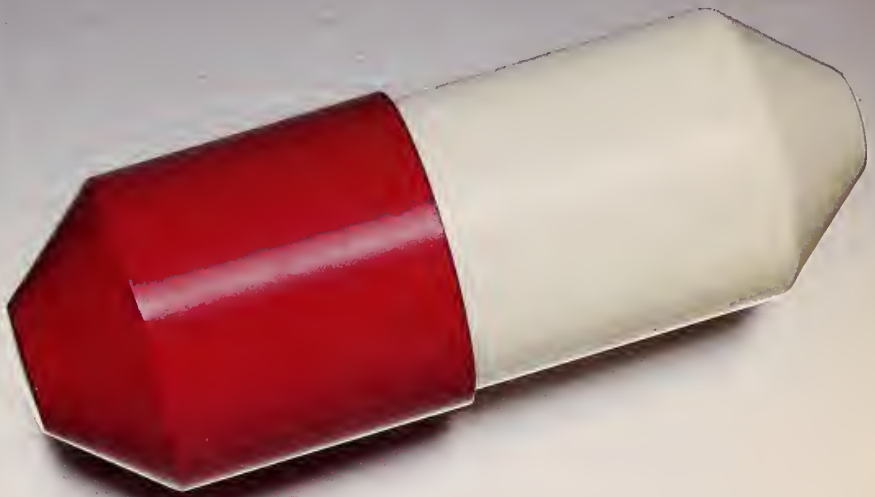
**Supplied:** 'Dyazide' is supplied as a red and white capsule, in bottles of 1000 capsules; Single Unit Packages (unit-dose) of 100 (intended for institutional use only); in Patient-Pak™ unit-of-use bottles of 100.

BRS-DZ:L42

# In Hypertension\*... When You Need to Conserve $K^+$

## Remember the Unique Red and White Capsule: Your Assurance of SK&F Quality

Serum  $K^+$  and BUN should be checked periodically (see Warnings and Precautions)



### Potassium-Sparing

## DYAZIDE®

25 mg Hydrochlorothiazide/50 mg Triamterene/SKF

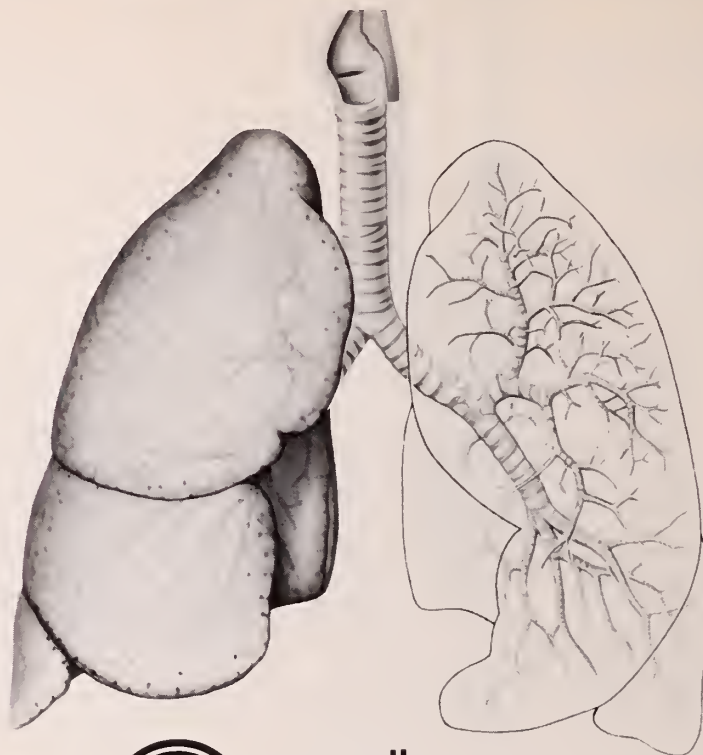
### Over 19 Years of Confidence

The unique  
red and white  
Dyazide® capsule:  
Your assurance of  
SK&F quality.



a product of  
**SK&F CO.**  
Carolina, P.R. 00630

# Consider the causative organisms...



**Ceclor<sup>®</sup>**  
cefactor

**250-mg Pulvules<sup>®</sup> t.i.d.**

**offers effectiveness against  
the major causes of bacterial bronchitis**

*Haemophilus influenzae*, *H influenzae*, *Streptococcus pneumoniae*, *Streptococcus pyogenes*  
(ampicillin-susceptible) (ampicillin-resistant)

**Note:** Ceclor<sup>®</sup> is contraindicated in patients with known allergy to the cephalosporins and should be given cautiously to penicillin-allergic patients.

#### **Ceclor<sup>®</sup>** (cefactor)

**Summary:** Consult the package literature for prescribing information.

**Indications:** Lower respiratory infections, including pneumonia, caused by susceptible strains of *Streptococcus pneumoniae*, *Haemophilus influenzae*, and *S. pyogenes* (group A beta-hemolytic streptococci).

**Contraindications:** Known allergy to cephalosporins.

**Warnings:** CECLOR SHOULD BE ADMINISTERED CAUTIOUSLY TO PENICILLIN-SENSITIVE PATIENTS. PENICILLINS AND CEPHALOSPORINS SHOW PARTIAL CROSS-ALLERGENICITY. POSSIBLE REACTIONS INCLUDE ANAPHYLAXIS.

Administer cautiously to allergic patients.

Pseudomembranous colitis has been reported with virtually all broad-spectrum antibiotics. It must be considered in differential diagnosis of antibiotic-

associated diarrhea. Colon flora is altered by broad-spectrum antibiotic treatment, possibly resulting in antibiotic-associated colitis.

#### **Precautions:**

- Discontinue Ceclor in the event of allergic reactions to it.
- Prolonged use may result in overgrowth of nonsusceptible organisms.
- Positive direct Coombs' tests have been reported during treatment with cephalosporins.
- In renal impairment, safe dosage of Ceclor may be lower than that usually recommended. Ceclor should be administered with caution in such patients.
- Broad-spectrum antibiotics should be prescribed with caution in individuals with a history of gastrointestinal disease, particularly colitis.
- Safety and effectiveness have not been determined in pregnancy, lactation, and infants less than one month old. Ceclor

penetrates mother's milk. Exercise caution in prescribing for these patients.

#### **Adverse Reactions:** (percentage of patients)

Therapy-related adverse reactions are uncommon. Those reported include:

- Gastrointestinal (mostly diarrhea): 2.5%.
- Symptoms of pseudomembranous colitis may appear either during or after antibiotic treatment.
- Hypersensitivity reactions (including morbilliform eruptions, pruritus, urticaria, erythema multiforme, serum-sickness-like reactions): 1.5%; usually subside within a few days after cessation of therapy. These reactions have been reported more frequently in children than in adults and have usually occurred during or following a second course of therapy with Ceclor. No serious sequelae have been reported. Antihistamines and corticosteroids appear to enhance resolution of the syndrome.

- Cases of anaphylaxis have been reported, half of which have occurred in patients with a history of penicillin allergy.
- Other: eosinophilia, 2%; genital pruritus or vaginitis, less than 1%.

#### **Abnormalities in laboratory results of uncertain etiology**

- Slight elevations in hepatic enzymes.
- Transient fluctuations in leukocyte count (especially in infants and children)
- Abnormal urinalysis; elevations in BUN or serum creatinine
- Positive direct Coombs' test
- False-positive tests for urinary glucose with Benedict's or Fehling's solution and Clinitest<sup>®</sup> tablets but not with Tes-Tape<sup>®</sup> (glucose enzymatic test strip, Lilly)

© 1986, ELI LILLY AND COMPANY [060485LR]



600332

Additional information available to the profession on request from Eli Lilly and Company, Indianapolis, Indiana 46285

Eli Lilly Industries, Inc.  
Carolina, Puerto Rico 00630



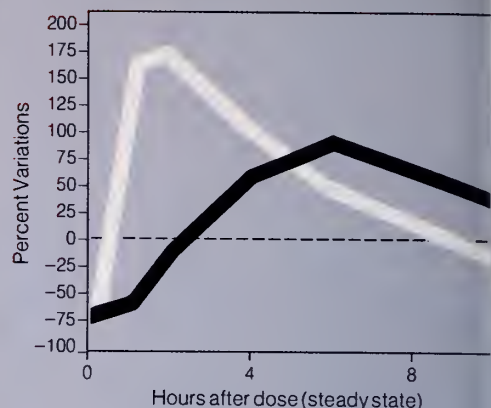
A close-up photograph of a middle-aged man with light brown hair, smiling broadly and showing his teeth. He is wearing a blue baseball cap and a blue denim jacket over a yellow sweater. He is seated in a red car seat, which is visible on the left side of the frame. The background is dark and out of focus.

Easy to live with





## INDERAL LA and



- INDERAL LA avoids the sharp peaks seen with atenolol

# Blood pressure controlled,

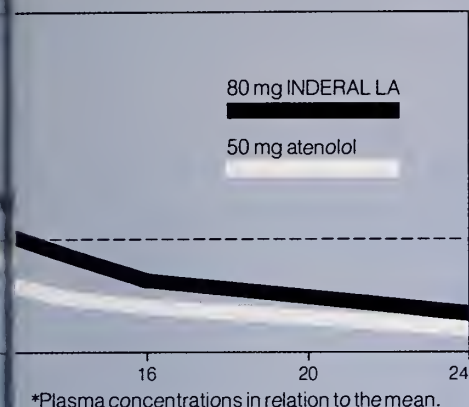
## Smooth blood pressure control and well tolerated

Once-daily INDERAL LA (propranolol HCl) keeps life simple for the patient. A single dose provides 24-hour blood pressure control. Convenient and well tolerated, INDERAL LA rarely interferes with everyday living. In fact, a recent study of 138 patients found a low incidence of side effects with INDERAL LA, which was not significantly different from that reported with metoprolol and atenolol.<sup>2</sup>

INDERAL LA should not be used in the presence of congestive heart failure, sinus bradycardia, cardiogenic shock, heart block greater than first degree, and bronchial asthma.

**Once-daily**  
**INDERAL<sup>®</sup> LA**  
**(PROPRANOLOL HCl) Long Acting Capsules**

atenolol over 24 hours\*<sup>1</sup>



- Smooth, consistent plasma drug levels over 24 hours
- Full, 24-hour blood pressure control with INDERAL LA



# and feeling good.

## Added blood pressure control with the preferred diuretic

When more than one antihypertensive agent is needed, once-daily **INDERIDE LA** enhances patient compliance to improve long-term control. Patients receive all the benefits of controlled-release **INDERAL LA** and standard-release hydrochlorothiazide (HCTZ), for comfortable morning diuresis. Not only does this regimen permit patients to follow normal daily routines, but HCTZ also produces less potassium wastage on a mg-for-mg basis than chlorthalidone.<sup>3,4</sup>

**Once-daily**  
**INDERIDE® LA**  
(PROPRANOLOL HCl [INDERAL® LA] /HYDROCHLOROTHIAZIDE)

As with all fixed-combination antihypertensives, **INDERIDE LA** is not indicated for the initial treatment of hypertension.

Please turn page for brief summary of prescribing information.



# Once-daily INDERAL® LA (PROPRANOLOL HCl) LONG ACTING CAPSULES



The appearance of these capsules is a registered trademark of Ayerst Laboratories

BRIEF SUMMARY (FOR FULL PRESCRIBING INFORMATION, SEE PACKAGE CIRCULARS)

**INDERAL® LA** Brand of PROPRANOLOL HYDROCHLORIDE (Long Acting Capsules)  
**INDERIDE® LA** Brand of PROPRANOLOL HYDROCHLORIDE (INDERAL® LA) and HYDROCHLOROTHIAZIDE (Long Acting Capsules)

INDERAL LA AND INDERIDE LA Capsules should not be considered simple mg. for-mg. substitutes for INDERAL and INDERIDE Tablets. Please see package circulars

## CONTRAINDICATIONS

**Propranolol hydrochloride (INDERAL® LA):** Propranolol is contraindicated in 1) cardiogenic shock, 2) sinus bradycardia and greater than first degree block, 3) bronchial asthma, 4) congestive heart failure (see WARNINGS) unless the failure is secondary to a tachyarrhythmia treatable with propranolol.

**Hydrochlorothiazide:** Hydrochlorothiazide is contraindicated in patients with anuria or hypersensitivity to this or other sulfonamide-derived drugs.

## WARNINGS

**Propranolol hydrochloride (INDERAL® LA):** CARDIAC FAILURE: Sympathetic stimulation may be a vital component supporting circulatory function in patients with congestive heart failure, and its inhibition by beta blockade may precipitate more severe failure. Although beta blockers should be avoided in overt congestive heart failure, if necessary, they can be used with close follow-up in patients with a history of failure who are well compensated, and are receiving digitalis and diuretics. Beta-adrenergic blocking agents do not abolish the inotropic action of digitalis on heart muscle.

IN PATIENTS WITHOUT A HISTORY OF HEART FAILURE, continued use of beta blockers can, in some cases, lead to cardiac failure. Therefore, at the first sign or symptom of heart failure, the patient should be digitalized and/or treated with diuretics, and the response observed closely, or propranolol should be discontinued (gradually, if possible).

IN PATIENTS WITH ANGINA PECTORIS, there have been reports of exacerbation of angina and, in some cases, myocardial infarction following abrupt discontinuance of propranolol therapy. Therefore, when discontinuance of propranolol is planned the dosage should be gradually reduced and the patient carefully monitored. In addition, when propranolol is prescribed for angina pectoris, the patient should be cautioned against interruption or cessation of therapy without the physician's advice. If propranolol therapy is interrupted and exacerbation of angina occurs, it usually is advisable to reinstitute propranolol therapy and take other measures appropriate for the management of unstable angina pectoris. Since coronary artery disease may be unrecognized, it may be prudent to follow the above advice in patients considered at risk of having occult atherosclerotic heart disease who are given propranolol for other indications.

**THYROTOXICOSIS:** Beta blockade may mask certain clinical signs of hyperthyroidism. Therefore, abrupt withdrawal of propranolol may be followed by an exacerbation of symptoms of hyperthyroidism, including thyroid storm. Propranolol does not distort thyroid function tests.

IN PATIENTS WITH WOLFF-PARKINSON-WHITE SYNDROME, several cases have been reported in which, after propranolol, the tachycardia was replaced by a severe bradycardia requiring a demand pacemaker. In one case this resulted after an initial dose of 5 mg propranolol.

**MAJOR SURGERY:** The necessity or desirability of withdrawal of beta-blocking therapy prior to major surgery is controversial. It should be noted, however, that the impaired ability of the heart to respond to reflex adrenergic stimuli may augment the risks of general anesthesia and surgical procedures.

**Nonallergic Bronchospasm (eg, chronic bronchitis, emphysema)—PATIENTS WITH BRONCHOSPASTIC DISEASES SHOULD, IN GENERAL, NOT RECEIVE BETA BLOCKERS.** Inderal should be administered with caution, since it may block bronchodilation produced by endogenous and exogenous catecholamine stimulation of beta receptors.

**DIABETES AND HYPOGLYCEMIA:** Beta-adrenergic blockade may prevent the appearance of certain premonitory signs and symptoms (pulse rate and pressure changes) of acute hypoglycemia in labile insulin-dependent diabetes. In these patients, it may be more difficult to adjust the dosage of insulin. Hypoglycemic attacks may be accompanied by a precipitous elevation of blood pressure.

**Hydrochlorothiazide:** Thiazides should be used with caution in severe renal disease. In patients with renal disease, thiazides may precipitate azotemia. In patients with impaired renal function, cumulative effects of the drug may develop.

Thiazides should also be used with caution in patients with impaired hepatic function or progressive liver disease, since minor alterations of fluid and electrolyte balance may precipitate hepatic coma.

Thiazides may add to or potentiate the action of other antihypertensive drugs. Potentiation occurs with ganglionic or peripheral adrenergic-blocking drugs.

Sensitivity reactions may occur in patients with a history of allergy or bronchial asthma.

The possibility of exacerbation or activation of systemic lupus erythematosus has been reported.

## PRECAUTIONS

**Propranolol hydrochloride (INDERAL® LA):** GENERAL: Propranolol should be used with caution in patients with impaired hepatic or renal function. Propranolol is not indicated for the treatment of hypertensive emergencies.

Beta-adrenoreceptor blockade can cause reduction of intraocular pressure. Patients should be told that propranolol may interfere with the glaucoma screening test. Withdrawal may lead to a return of increased intraocular pressure.

**CLINICAL LABORATORY TESTS:** Elevated blood urea levels in patients with severe heart disease, elevated serum transaminase, alkaline phosphatase, lactate dehydrogenase.

**DRUG INTERACTIONS:** Patients receiving catecholamine-depleting drugs, such as reserpine should be closely observed if propranolol is administered. The added catecholamine blocking action may produce an excessive reduction of resting sympathetic nervous activity, which may result in hypotension, marked bradycardia, vertigo, syncopal attacks, or orthostatic hypotension.

**CARCINOGENESIS, MUTAGENESIS, IMPAIRMENT OF FERTILITY:** Long-term studies in animals have been conducted to evaluate toxic effects and carcinogenic potential. In 18 month studies, in both rats and mice, employing doses up to 150 mg/kg/day, there was no evidence of significant drug-induced toxicity. There were no drug-related tumorigenic effects at any of the dosage levels. Reproductive studies in animals did not show any impairment of fertility that was attributable to the drug.

**PREGNANCY:** Pregnancy Category C. Propranolol has been shown to be embryotoxic in animal studies at doses about 10 times greater than the maximal recommended human dose. There are no adequate and well-controlled studies in pregnant women. Propranolol should be used during pregnancy only if the potential benefit justifies the potential risk to the fetus.

# Once-daily INDERIDE® LA

Each capsule contains propranolol HCl (INDERAL® LA), 80 mg, 120 mg, or 160 mg, and hydrochlorothiazide, 50 mg



The appearance of these capsules is a registered trademark of Ayerst Laboratories.

**NURSING MOTHERS:** Propranolol is excreted in human milk. Caution should be exercised when propranolol is administered to a nursing mother.

**PEDIATRIC USE:** Safety and effectiveness in children have not been established.

**Hydrochlorothiazide:** GENERAL: Periodic determination of serum electrolytes to detect possible electrolyte imbalance should be performed at appropriate intervals.

All patients receiving thiazide therapy should be observed for clinical signs of fluid or electrolyte imbalance, namely hyponatremia, hypochloremic alkalosis, and hypokalemia. Serum and urine electrolyte determinations are particularly important when the patient is vomiting excessively or receiving parenteral fluids. Medication such as digitalis may also influence serum electrolytes. Warning signs irrespective of cause are: Dryness of mouth, thirst, weakness, lethargy, drowsiness, restlessness, muscle pains or cramps, muscular fatigue, hypotension, oliguria, tachycardia, and gastrointestinal disturbances such as nausea and vomiting.

Hypokalemia may develop, especially with brisk diuresis, when severe cirrhosis is present, or during concomitant use of corticosteroids or ACTH.

Interference with adequate oral electrolyte intake will also contribute to hypokalemia. Hypokalemia can sensitize or exaggerate the response of the heart to the toxic effect of digitalis (eg, increased ventricular irritability). Hypokalemia may be avoided or treated by use of potassium supplements, such as foods with a high potassium content.

Any chloride deficit is generally mild and usually does not require specific treatment, except under extraordinary circumstances (as in liver or renal disease). Dilutional hyponatremia may occur in edematous patients in hot weather; appropriate therapy is water restriction, rather than administration of salt, except in rare instances when the hyponatremia is life-threatening. In actual salt depletion, appropriate replacement is the therapy of choice.

Hyperuricemia may occur or frank gout may be precipitated in certain patients receiving thiazide therapy.

Insulin requirements in diabetic patients may be increased, decreased, or unchanged. Diabetes mellitus which has been latent may become manifest during thiazide administration.

If progressive renal impairment becomes evident, consider withholding or discontinuing diuretic therapy.

Thiazides may decrease serum PBI levels without signs of thyroid disturbance.

Calcium excretion is decreased by thiazides. Pathologic changes in the parathyroid gland with hypercalcemia and hypophosphatemia have been observed in a few patients on prolonged thiazide therapy. The common complications of hyperparathyroidism, such as renal lithiasis, bone resorption, and peptic ulceration, have not been seen. Thiazides should be discontinued before carrying out tests for parathyroid function.

**DRUG INTERACTIONS:** Thiazide drugs may increase the responsiveness to tubocurarine.

The antihypertensive effects of thiazides may be enhanced in the postsympathectomy patient. Thiazides may decrease arterial responsiveness to norepinephrine. This diminution is not sufficient to preclude effectiveness of the pressor agent for therapeutic use.

**PREGNANCY:** Pregnancy Category C. Thiazides cross the placental barrier and appear in cord blood. The use of thiazides in pregnancy requires that the anticipated benefit be weighed against possible hazards to the fetus. These hazards include fetal or neonatal jaundice, thrombocytopenia, and possibly other adverse reactions which have occurred in the adult.

**NURSING MOTHERS:** Thiazides appear in human milk. If use of the drug is deemed essential, the patient should stop nursing.

**PEDIATRIC USE:** Safety and effectiveness in children have not been established.

## ADVERSE REACTIONS

**Propranolol hydrochloride (INDERAL® LA):** Most adverse effects have been mild and transient and have rarely required the withdrawal of therapy.

**Cardiovascular:** Bradycardia, congestive heart failure; intensification of AV block, hypotension, paresthesia of hands, thrombocytopenic purpura, arterial insufficiency, usually of the Raynaud type.

**Central Nervous System:** Lightheadedness, mental depression manifested by insomnia, lassitude, weakness, fatigue; reversible mental depression progressing to cataplexy; visual disturbances, hallucinations; an acute reversible syndrome characterized by disorientation for time and place; short term memory loss, emotional lability, slightly clouded sensorium; and decreased performance on neuropsychometrics.

**Gastrointestinal:** Nausea, vomiting, epigastric distress, abdominal cramping, diarrhea, constipation, mesenteric arterial thrombosis, ischemic colitis.

**Allergic:** Pharyngitis and agranulocytosis, erythematous rash; fever combined with aching and sore throat, laryngospasm and respiratory distress.

**Respiratory:** Bronchospasm.

**Hematologic:** Agranulocytosis, nonthrombocytopenic purpura, thrombocytopenic purpura.

**Auto-immune:** In extremely rare instances, systemic lupus erythematosus has been reported.

**Miscellaneous:** Alopecia, LE-like reactions, psoriasisiform rashes; dry eyes; male impotence; and Peyronie's disease have been reported rarely. Oculomucocutaneous reactions involving the skin, serous membranes, and conjunctivae reported for a beta blocker (practolol) have not been associated with propranolol.

**Hydrochlorothiazide:**

**Gastrointestinal:** Anorexia, gastric irritation, nausea, vomiting, cramping, diarrhea, constipation; jaundice (intrahepatic cholestatic jaundice), pancreatitis, sialadenitis.

**Central Nervous System:** Dizziness, vertigo; paresthesias; headache; xanthopsia.

**Hematologic:** Leukopenia, agranulocytosis, thrombocytopenia, aplastic anemia.

**Cardiovascular:** Orthostatic hypotension (may be aggravated by alcohol, barbiturates, or narcotics).

**Hypersensitivity:** Purpura, photosensitivity; rash; urticaria, necrotizing anginitis (vasculitis, cutaneous vasculitis); fever, respiratory distress, including pneumonitis; anaphylactic reactions.

**Other:** Hyperglycemia, glycosuria, hyperuricemia; muscle spasm; weakness; restlessness, transient blurred vision.

Whenever adverse reactions are moderate or severe, thiazide dosage should be reduced or therapy withdrawn.

\*The appearance of these capsules is a registered trademark of Ayerst Laboratories.

## REFERENCES

1. Data on file, Ayerst Laboratories. 2. Ravid M, Lang R, Jutrin I: The relative antihypertensive potency of propranolol, oxprenolol, atenolol, and metoprolol given once daily. *Arch Intern Med* 1985;145:1321-1323. 3. Sumiyoshi L, Vivian AS, Frisot KB, et al: Potassium loss associated with hydrochlorothiazide versus chlorthalidone. *Clin Ther* 1981;4:308-320. 4. Ram CVS, Garrett BN, Kaplan NM: Moderate sodium restriction and various diuretics in the treatment of hypertension. *Arch Intern Med* 1981;141:1015-1019.

**Ayerst**

AYERST LABORATORIES  
New York, NY 10017

© 1986 Ayerst Laboratories

5593/486



# COPPER LAKE MANOR...

## THE ALTERNATIVE



**N**ot all patients need nursing home care. Yet, some patients are not able to fully care for themselves in their own homes.

COPPER LAKE MANOR offers an alternative.

COPPER LAKE MANOR, located at the Village at Copper Lake in Edmond, offers luxurious living for the semi-independent. Your patient will be able to live life to the fullest and still have the security and peace of mind that comes with having full time nursing care available.

### NURSING SERVICES PROVIDED

- Skilled Nursing
- Occupational and Physical Therapy
- Maintenance of Health Files
- Monitoring of Medications
- Speech Therapy
- Health and Fitness Assessments
- Periodic Blood Pressure and Heart Rate Checks
- Health Education Programs

### Other COPPER LAKE MANOR amenities:

- Spacious Efficiency, 1 and 2 Bedroom Apartments
- Complete Meal Service in a Beautiful Dining Area
- Weekly Maid Service
- 24 hour Security and Health Monitoring
- 6 Acre Lake Complete with Fountains, Ducks and a Lighted Walkway
- Transportation
- Beauty Salon
- Much, Much More

*There is an alternative to nursing home care — Copper Lake Manor*

*Models open now — Reserve your apartment today*



1300 W. 15th in Edmond  
340-5311

Call for more information or  
come by for a tour today!



# HOME ALWAYS HAS THE ADVANTAGE

**Y**ou know, there is nothing as comfortable as home — and with our home sweet home health care, we take your comfort very seriously.

BMC Care Advantage has a complete range of Medicare and private pay home health services. Call us for details.

It's to your advantage to think BMC Care Advantage. Call today. 948-8886.



— SERVICES INCLUDE —

LICENSED NURSES (RN and LPN) • HOMEMAKER/CHORE SERVICE  
PHYSICAL THERAPISTS • OCCUPATIONAL THERAPISTS  
SPEECH THERAPISTS • SPECIALTY SERVICES

BMC CARE ADVANTAGE IS AN AFFILIATE OF BAPTIST MEDICAL CENTER OF OKLAHOMA

## My Best Wishes

I sure wish I could change my attitude and improve my outlook about my profession. I really need to. When I hear and read that the golden age of medicine is ahead of us rather than behind us, and that medicine will persevere as a profession unaltered by commercialism, and that physicians will forever be the helmsmen of health care, I am shocked by the realization of my own malcontentedness.

I've previously admitted in jest but am now forced to acknowledge that I am, in fact, a curmudgeon; a crusty, hypercritical old man; an old Turk enamored of the past, distressed with the present, and pessimistic about the future. I don't enjoy being this way, but I do enjoy practicing medicine. It is my source of strength, and I cannot imagine finding happiness and fulfillment in any other pursuit.

My patients comfort me. They flatter me by their patronage. Their ills and problems engross me. They challenge me to read, to think, to work. They teach me and stimulate me to learn. They remind me of the awesome power of knowledge and the frustrating torment of ignorance.

Medical technology and research excite me. I am

spellbound by the avalanche of new knowledge, new therapies, new diagnostic devices and instruments. I am eager to be involved with them, impatient to use them, and anxious to watch my patients benefit from them. I am mesmerized by the anticipation of tomorrow as it makes today more tolerable and yesterday more understandable.

If only I could ignore the forces which are transforming and disfiguring the medical profession, I could change my attitude. I could believe that tomorrow will be the golden age of medicine. I could believe that physicians are not becoming merchants and that hospitals are not becoming discount supermarkets. I could believe that health care professionals are not becoming second-class citizens, deprived of their right to negotiate contracts, determine the value of their work, and sponsor their own charities. I could believe that the world of medicine has not become an occupied territory, bleeding under the hobs of an army of unqualified bureaucratic dictators.

I really wish I could believe all this. But I can't.

—MRJ



As I write this page, the summer months are coming upon us, and the end of the legislative session is near. The culmination and end result of our efforts this spring in tort reform are still unknown.

However, certain things are obvious and at least encouraging. Our coalition effort, made up of multiple facets of society throughout the state, has been energetic. A good deal of this energy, of course, has been provided by our state medical association, but one must admit that the influence of the press association and other business entities has certainly helped stimulate news releases, discussions, and general knowledge of the problem. The results of their effort, however, are relatively disappointing as far as physicians are concerned. What has been gained, has been gained mainly for the benefit of the industrial and business community, with very little actual help to the practicing doctor in Oklahoma.

This should not come as any surprise to us. We purposefully have gone along with this program in an attempt to diminish the concept of a "doctor versus trial attorney" conflict. However, I think we should all realize that in the final analysis, anything we might obtain will have to come down to that type of confrontation per se. Also, we all must realize that we have very little true sympathy from the other organizations. The medical profession has long handled its own problems and in general has been the envy of other associations everywhere. Although, in some respects, these various associations of the coalition have some goals similar to ours, our basic



problems differ significantly. Therefore, we must not count on any other groups of people doing our work for us.

Our further efforts this coming year, which I think will largely be unaided by other entities — not that we won't ask for help — is vital to us if we hope to gain any significant improvement. This is an election year for many of the legislators, and it is obvious that we have to attack them through the public, for it is the people who actually, in the last analysis, stand to gain the most from any improvement in the malpractice climate that we all live and work in today. Hopefully, we will be able to develop an effective organization to take this message to the people and try to exert some political pressure on the recalcitrant members of the legislature, particularly on the senators, of whom many are plaintiff's attorneys with a great deal of self-interest to protect. We know this will be a significant job, probably harder in Oklahoma than many of the other states because of the makeup of our legislature. However, we will try, and we will call upon the individuals of our society and of the state medical auxiliary to aid in many instances.

I hope everyone will be happy to help in any way that our leadership deems important.

Sincerely,

A handwritten signature in dark ink that reads "Norman L. Dunitz, MD." The signature is written in a cursive, flowing style.

Norman L. Dunitz, MD

# Infant Mortality in Oklahoma: Risk Factors Associated with Neonatal and Postneonatal Mortality, 1975-1982

JAMES C. DUKE, MS; DICK LORENZ, MSPH; and SARA REED DePERSIO, MD, MPH

**Recently, factors associated with both neonatal and postneonatal mortality have rapidly changed from the traditionally important medically related causes. Currently, medical factors remain most influential only among neonatal deaths. Socioeconomic factors have escalated to primary importance among postneonatal deaths. This rapid divergence in factors contributing to postneonatal mortality presents new challenges to preventative health services for infants.**

Historically, Oklahoma has mirrored national trends in infant mortality (Fig 1), with gains in neonatal and postneonatal survival being attained jointly. From 1928 to 1960, neonatal deaths declined from over 36 per 1000 live births to 18.5 per 1000 live births. Postneonatal deaths of neonatal survivors declined from 33 to 7 per thousand during this same period. Since 1960, progressive decreases in postneonatal mortality have continued, even as an increasing importance has been given to the role of neonatal deaths in determining infant mortality. However, the contribution of deaths during the postneonatal period to overall infant mortality has been systematically increasing.

In 1960, infant mortality in Oklahoma was composed of 72.5% neonatal deaths and 27.5% postneonatal deaths (Table 1). By 1970, neonatal mortal-

ity accounted for 76.5% of the infant deaths. However, since 1970, the importance of postneonatal mortality to the infant mortality rate has consistently increased. By 1982, the percent of infant deaths occurring during the postneonatal period had risen to 39.9%, a 70% increase.

Coincident with the dramatic increase in the contribution of postneonatal deaths to the overall infant mortality rate has been the idea that postneonatal mortality is a vanishing problem. This perception is exemplified by Starfield's report that, between 1979 and 1983, a computer search of English medical literature produced listings of six citations with the key words "postneonatal mortality." However, with the rising importance of postneonatal mortality, the success of public health interventions will, necessarily, require refocusing on risk factors associated with postneonatal death.<sup>1</sup>

Traditionally, factors most influential in postneonatal death have been deemed environmental<sup>2</sup> and independent of the more important factors associated with neonatal mortality.<sup>3</sup> Factors affecting neonatal mortality have been defined as "medical." The apparently disjointed nature of risk factors contributing to neonatal and postneonatal mortality is, at least in part, responsible for the decreased investigation of factors influencing postneonatal death. This paper will help remedy this lack of information by comparative analyses of neonatal and postneonatal deaths from Oklahoma in relation to factors considered important in neonatal death.

From the Maternal and Child Health Service, Oklahoma State Department of Health, Oklahoma City, Oklahoma.

Address reprint requests to Sara Reed DePersio, MD, Maternal and Child Health Service, Oklahoma State Department of Health, PO Box 53551, Oklahoma City, OK 73152.

## Methods

Estimates of infant mortality, risk-factor prevalence, and health assessments were generated using linked birth and death certificate data maintained by the Maternal and Child Health Service of the State of Oklahoma Department of Health. Birth and death records were utilized if both the birth and the death of an infant occurred while the infant was a resident within the state. Births must have occurred within the years 1975 through 1982.

Neonatal mortality (NIMR) was computed as the number of deaths among infants less than 29 days of age per 1000 live births; postneonatal mortality (PNIMR) was computed as the number of deaths among infants 29 through 365 days of age per 1000 live births; infant mortality (IMR) was computed as the number of deaths among infants up to one year of age per 1000 live births. Infant survival (ISR) was computed as the number of infants surviving through the first year of life per 1000 live births (ie,  $ISR = 1000 - IMR$ ).

Risk factor analyses compared infant mortality within levels of birthweight (grams), length of gestation (weeks), race, maternal education (years), maternal age (years), and prenatal care. Risk factors were stratified as follows:

Birthweight: very low birthweight (through 1500 grams)  
low birthweight (1501 through 2500 grams)  
normal birthweight (2501 through 4000 grams)  
high birthweight (greater than 4000 grams)

Gestational Age: under 28 weeks  
28 through 32 weeks  
32 through 36 weeks  
37 through 41 weeks  
42 or more weeks

Race: American Indian  
Black  
White and other

Maternal Age: under 18 years of age  
18 through 19 years of age  
20 through 24 years of age  
25 through 29 years of age  
30 through 34 years of age  
35 or more years of age

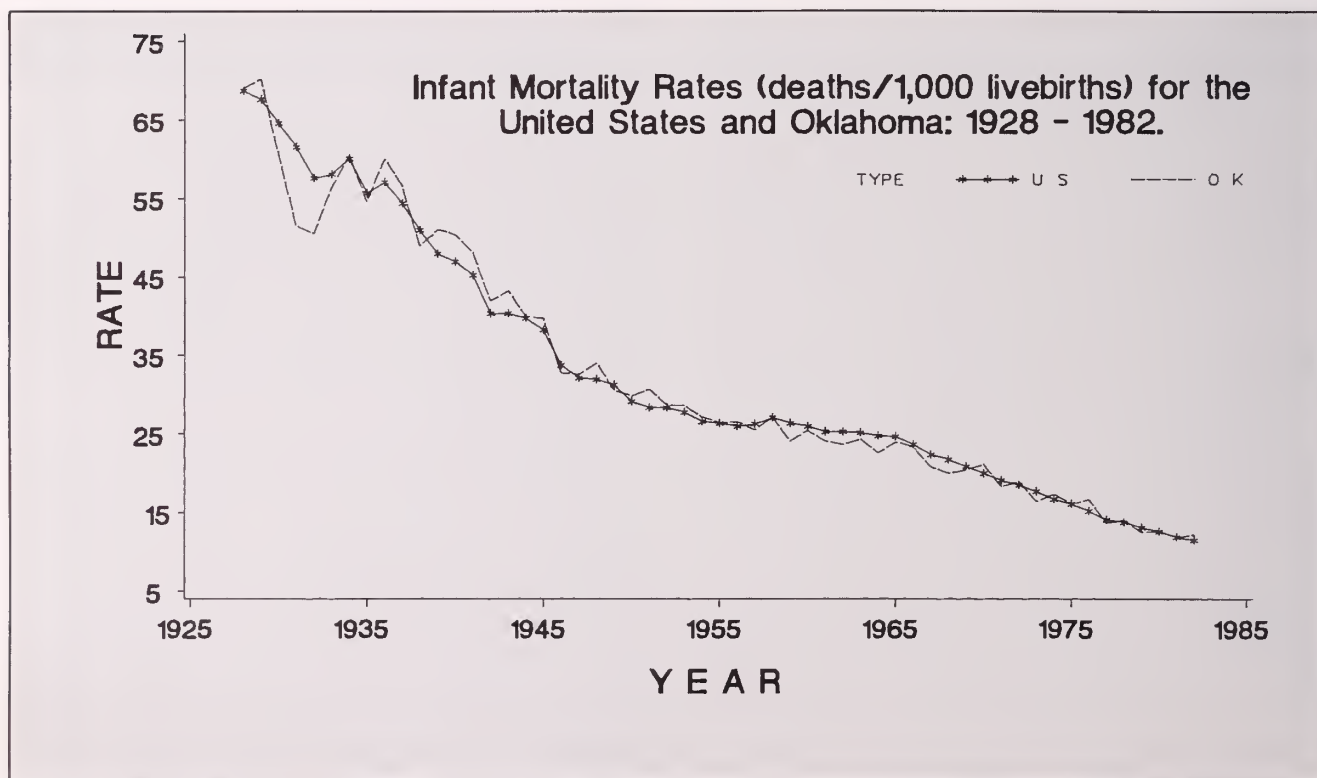


Fig 1. Infant mortality rates for Oklahoma and the United States, 1928-1982.



Maternal Education: under 9 years of formal education  
 9 through 12 years of formal education  
 13 through 16 years of formal education  
 17 or more years of formal education

Prenatal Care: Unknown  
 Inadequate  
 Intermediate  
 Adequate

For analyses of prenatal care, Kessner's prenatal care index was utilized.<sup>4</sup> Kessner's index score combines the month in which prenatal care began and the number of prenatal care health visits, in relation to differing lengths of gestation in assessing appropriateness of prenatal care. In order to facilitate calculations of gestational age, birth certificates for which the day of last menses was not reported were evaluated from the fifteenth day of the month, provided the month and year were stated. Arbitrarily assigning this date has been shown not to unduly

Table 1. Oklahoma Resident Live Births, Neonatal and Postneonatal Mortality Rates, and Contribution of Postneonatal Mortality to Infant Mortality, 1960-1984

Year	Resident Live Births	Neonatal		Postneonatal		Infant Deaths	Percentage* Postneonatal Contribution
		Deaths	Rate*	Deaths	Rate†		
1960	50,216	930	18.52	353	7.16	1,283	27.51
1961	50,092	871	17.38	332	6.79	1,203	27.60
1962	50,431	915	23.72	281	5.67	1,196	23.49
1963	48,847	877	17.95	305	6.40	1,182	25.80
1964	46,542	773	16.99	283	6.22	1,056	26.80
1965	41,883	694	16.57	300	7.34	994	30.18
1966	39,155	653	16.68	264	6.86	917	28.79
1967	39,189	603	15.39	216	5.63	819	26.37
1968	39,989	586	14.65	214	5.25	800	26.75
1969	41,756	659	15.78	195	4.74	854	22.83
1970	43,995	708	16.09	218	5.04	926	23.54
1971	44,139	603	13.66	212	4.87	815	26.01
1972	42,303	551	13.03	251	6.01	802	31.30
1973	40,765	477	11.70	189	4.69	666	28.38
1974	42,363	526	12.42	212	5.07	738	28.73
1975	42,704	486	11.38	202	4.78	688	29.36
1976	43,655	493	11.21	238	5.51	731	32.56
1977	45,449	408	8.98	215	4.77	623	34.51
1978	45,883	405	8.83	241	5.30	646	37.31
1979	49,007	386	7.88	225	4.63	611	36.83
1980	52,065	421	8.09	239	4.63	660	36.21
1981	53,620	383	7.14	249	4.68	632	39.40
1982	58,748	433	7.37	288	4.94	721	39.94
1983	56,859	386	6.79	229	4.06	615	37.24
1984	54,323	358	6.59	210	3.89	568	36.97

\*Death rates are expressed as deaths/1000 resident live births.

†Death rates adjusted with respect to neonatal deaths.

\*Percentage postneonatal contribution = (postneonatal deaths/infant deaths) × 100.

Table 2. The Association of Infant Mortality Risk Factors with Age of Infant at Death (Weeks), 1975-1982 Birth Cohort

Independent Variable	Neonatal Deaths (N = 3,589)		Postneonatal Deaths (N = 1,743)	
	B	SE (B)	B	SE (B)
Constant	0.921	0.0515	21.301	0.9419
<b>Length of Gestation</b>				
Less than 28 weeks	-0.317	0.0574*	1.462	1.3762
28 to 31 weeks	-0.149	0.0631†	2.181	1.5172
32 to 36 weeks	-0.093	0.0522‡	-0.726	0.8036
42 or more weeks	-0.126	0.0553†	1.328	0.7756‡
<b>Race</b>				
Black	0.100	0.0431‡	-0.198	0.8459
Indian	0.065	0.0637	-0.174	0.9912
<b>Birthweight</b>				
Under 1500 grams	-0.255	0.0501*	-3.763	1.1611*
1501 - 2500 grams	-0.211	0.0485*	-1.924	0.8067†
4001 or more grams	-0.028	0.0937	0.745	1.2157
<b>Maternal Age</b>				
Under 18 years	-0.075	0.0692	-0.7690	1.2846
18 or 19 years	-0.073	0.0420‡	-0.9786	0.7352
30 - 34 years	-0.114	0.0400*	-0.4873	0.8440
35 or more years	-0.043	0.4430	-0.3185	0.9309
<b>Maternal Education</b>				
Under 9 years	0.041	0.0687	-4.638	1.3502*
9 to 12 years	0.050	0.0377	-2.699	0.8567*
17 or more years	0.135	0.1032	-3.173	2.3349
<b>Level of Prenatal Care</b>				
Unknown	0.028	0.0516	-0.065	1.3345
Inadequate	0.322	0.0953*	-1.645	1.2254
Intermediate	-0.074	0.0326†	-0.115	0.6420
adjusted R <sup>2</sup>	0.0725		0.0272	

\*p &lt; 0.005

†p &lt; 0.05

‡p &lt; 0.10

Note: All variables use term (37 to 41 weeks), normal birthweight (2501 to 4000 grams) infants born to white mothers who are between the ages of 20 and 29, with college education (13 to 16 years) and received adequate (as defined by Kessner) prenatal care as a reference.

Table 3. Neonatal, Postneonatal, and Infant Mortality Rates and Infant Survival Rates Within Birthweight Categories, 1975-1982 Birth Cohort

Birthweight (Grams)	Live Births	Neonatal		Postneonatal*		Infant	
		Deaths	Rate	Deaths	Rate	Mortality Rate	Survival Rate
< 1500	4,497	1,802	400.71	192	71.24	443.41	556.59
1501 - 2500	23,154	684	29.54	299	13.31	42.46	957.54
2501 - 4000	320,818	1,003	3.13	1,149	3.59	6.71	993.24
> 4001	42,476	100	2.35	104	2.45	4.88	995.20

\*Postneonatal death rates are computed as deaths/1000 neonatal survivors. All other rates are expressed per 1000 live births.

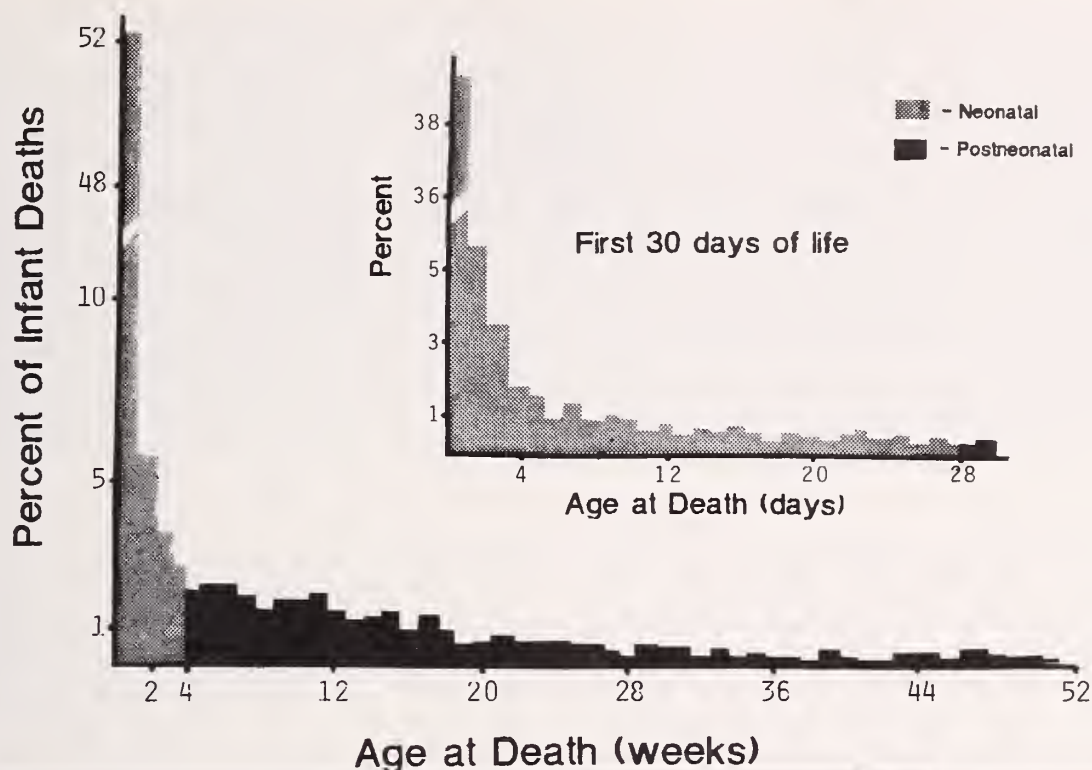


Fig 2. Percent of infant deaths by age of occurrence: 1975-1982 Oklahoma birth cohort.

bias the distribution of gestational ages.<sup>5</sup> Gestational age was subsequently determined from the date of the last menstrual period.

Risk-of-death comparisons were evaluated using relative risk (RR). Relative-risk ratios compare the probability of deaths in the exposed versus the probability of death in the nonexposed, ie, the comparison of mortality rates. Relative-risk ratios were computed as presented by Schlesselman.<sup>6</sup>

Multiple least squares regression was performed in order to facilitate relative importance of these seven risk factors in estimating the age at death (in weeks) of the infant. Regression analysis was conducted for all infant deaths, neonatal deaths, and postneonatal deaths. Results of those analyses are presented in Table 2.

**Age.** In the study population of the infants born between 1975 and 1982, 64% of the infants that died (3121 of 4865), died during the first 28 days (Fig 2). Of these neonatal deaths, 84% (N=2626) occurred during the first week; 61.6% (N=1921) occurred within the first 24 hours. For deaths occurring between 28 and 365 days of life, the number of deaths gradually declined: 401 deaths (8.2%) occurred during the second month, 353 (7.2%) during the third

month, 271 (5.6%) during the fourth month, 168 (3.4%) during the fifth month, and 129 (2.6%) during the sixth month. The remaining six months of life included 388 (8%) of all infant deaths.

**Birthweight.** As birthweight increased, infant survival simultaneously increased. For neonates, death rates declined 99.4% (Table 3), from very-low-birthweight infants (NIMR = 387.86) to high-birthweight infants (NIMR = 2.35). In comparison to normal-birthweight (2500 to 4000 grams) infants, very-low-birthweight infants experienced mortality rates 120 times as great (RR = 128.0), and high-birthweight infants' mortality was almost 1.3 times less frequent (RR = 0.75).

Trends in postneonatal mortality paralleled those presented by neonatal mortality, declining 81.8% from very-low-birthweight infants to high-birthweight infants. The risk associated with the postneonatal death of a normal-birthweight infant was 3.59 per 1000 neonatal survivors. Very-low-birthweight infants experienced postneonatal death 20 times (RR = 19.8) more frequently than did infants with birthweights between 2500 and 4000 grams (PNIMR = 71.24 vs. PNIMR = 3.59). Low-birthweight infants (1501 to 2500 grams) exhibited mortal-



Table 4. Neonatal, Postneonatal, and Infant Mortality Rates and Infant Survival Rates for Gestational Age Groups, 1975-1982 Birth Cohort

Gestational Age (Weeks)	Live Births	Neonatal		Postneonatal*		Infant	
		Deaths	Rate	Deaths	Rate	Mortality Rate	Survival Rate
Under 28	3,036	1,556	512.52	164	110.81	566.53	433.47
28 - 31	3,703	470	126.92	90	27.84	151.23	848.77
32 - 36	42,694	573	13.42	340	8.07	21.38	978.62
37 - 41	223,183	622	2.79	823	3.70	6.47	993.52
42 +	63,176	368	5.82	327	5.21	11.00	989.00

\*Postneonatal death rates are computed as deaths/1000 neonatal survivors. All other rates are expressed per 1000 live births.

ity rates two times ( $RR = 2.21$ ) greater than normal-birthweight postneonates. Postneonates with birthweights in excess of 4000 grams exhibited a risk of death two-thirds ( $RR = 0.78$ ) as great as postneonates with birthweights between 2500 and 4000 grams.

It is interesting to note that, for infants with normal birthweights, the risk of death during the postneonatal period was greater than the risk of death during the neonatal period. For this weight group, the risk of a postneonatal death was 15% greater than a neonatal death ( $RR = 0.9$ ). Parallel to the postneonatal group, very-low- and low-birthweight infants experienced the greatest risk of increased mortality; however, contrary to the postneonatal period, high-birthweight infants also exhibited a greater risk of dying than their normal-birthweight counterparts.

**Gestational Age.** Infant mortality rates declined as length of gestation increased until postterm (42 weeks gestation or more). For infants born postterm, infant mortality was 1.7 times greater than mortality experienced by infants born to term (Table 4).

The largest gain in infant survival was experienced by the group of infants born between 32 and 37 weeks gestational age. For this gestational age group, infants survived 1.2 times more often than infants born between 28 and 32 weeks gestational age. The major portion of this increase is attributed to the decline in neonatal mortality. Neonatal mortality exhibited a 9.5-fold decrease while postneonatal mortality fell to 3.4 times the mortality rate exhibited by 28-32-week gestation infants.

For infants born under 28 weeks gestational age, 51.2% died during the neonatal period, while only 5% died during the postneonatal period ( $RR = 4.61$ ). For preterm infants born between 28 and 32 weeks

gestation, 12.7% died neonatally and 2.4% postneonatally ( $RR = 4.6$ ). Relatively little difference was exhibited between neonatal and postneonatal mortality rates for infants born after 32 weeks gestation. However, mortality rates for the postneonatal period were 1.30 times higher than mortality rates of the neonatal period.

Neonatal and postneonatal mortality rates both declined as length of gestation increased. Neonatal mortality decreased 99.4% from infants born under 28 weeks gestation as opposed to term. Postneonatal mortality similarly decreased 96.7% from infants born under 28 weeks gestation as compared to term.

**Race.** Survival of black infants at one year of age was 1.0% and 1.3% less than Indian or other infants, respectively (Table 5). Black infants also had the highest neonatal and postneonatal mortality rates. Compared to Indian infants, black infants were 1.8 and 1.3 times more likely to die during the neonatal and postneonatal periods, respectively. Similarly, black infant mortality was twice the mortality of white and other infants for both the neonatal ( $RR = 1.9$ ) and postneonatal ( $RR = 2.1$ ) periods. Indian infants experienced mortality 1.2 times greater than that in white infants. Indian infants were as likely to die during the neonatal period as were white infants ( $RR = 1.1$ ). During the postneonatal period, Indian infants were 1.6 times more likely to die than were white infants.

**Maternal Age.** Neonatal and postneonatal mortality, in general, decreased with increasing ages of the mother (Table 6). In similar maternal age groups, postneonatal mortality was approximately one-half the neonatal death rate ( $RR$ s ranging from 0.35 to 0.60). Differences between mortality rates were smallest for infants born to mothers aged 18 and 19

Table 5. Neonatal, Postneonatal, and Infant Mortality Rates and Infant Survival Rates for Racial Groups, 1975-1982 Birth Cohort

Racial Group	Live Births	Neonatal		Postneonatal*		Infant	
		Deaths	Rate	Deaths	Rate	Mortality Rate	Survival Rate
Black	31,703	529	16.69	266	8.53	25.08	974.92
Indian	25,220	237	9.40	157	6.28	15.62	984.38
Others	329,755	2,823	8.56	1,321	4.04	12.57	987.43

\*Postneonatal death rates are computed as deaths/1000 neonatal survivors. All other rates are expressed per 1000 live births.

years, while infants of mothers aged 30 to 34 years exhibited the greatest risk differential. Infants born to 18- and 19-year-old mothers were 1.7 times less likely to die postneonataally as neonatally. Infants born to mothers 30 to 34 years of age were 2.9 times less likely to die neonatally as postneonataally.

Risk of death during the neonatal period steadily decreased as maternal age increased. In comparison to infants of mothers aged 20 to 24 years, the risk of death decreased 5% for infants of mothers aged 25 years or more. Infants born to mothers more than 35 years of age were 1.2 times less likely to die during the neonatal period than infants of 20- to 24-year-old mothers.

Infants born to mothers under 18 years of age and to mothers 18 to 20 years of age were 1.5 and 1.4 times, respectively, less likely to survive the postneonatal period than infants of mothers 20 to 24 years of age. Infants of mothers 26 through 34 years of age died one-third as often during the postneonatal period as did infants of mothers 20 to 24 years of age. However, infants of mothers more than 35 years of age exhibited only a 13% decrease in mortality as compared to infants of mothers 20 to 24 years of age.

**Maternal Education.** As maternal educational attainment increased up to 16 years, infant mortality decreased (Table 7). However, infants born to mothers with 17 or more years of educational experience (IMR = 25.92) were almost 2 times (RR = 1.61) less likely to die within the first year of life as infants born to mothers of any other educational level. This trend was consistent with regard to neonatal mortality. As mothers increased their educational attainment, risk of neonatal death decreased. Infants of mothers completing more than 16 years of education experienced neonatal mortality 2.5 times less than all other educational levels.

Postneonatal mortality, also, decreased with increasing educational levels. Infants born to mothers achieving more than 12 years of education were 2 times less likely to die during the postneonatal period as compared to infants of mothers not obtaining education equivalent to the high levels (PNIMR: 2.67 vs 5.24 deaths per 1000 neonatal survivors, respectively).

**Prenatal Care.** In general, as the level of prenatal care increased, infant survival rates increased (Table

Table 6. Neonatal, Postneonatal, and Infant Mortality Rates and Infant Survival Rates Within Maternal Age Categories, 1975-1982 Birth Cohort

Maternal Age (Years)	Live Births	Neonatal		Postneonatal*		Infant	
		Deaths	Rate	Deaths	Rate	Mortality Rate	Survival Rate
Under 18	14,787	196	13.26	102	6.99	20.15	979.85
18 - 19	66,439	702	10.57	418	6.36	16.86	983.14
20 - 24	176,177	1,557	8.84	810	4.64	13.44	986.56
25 - 29	93,212	783	8.40	289	3.13	11.50	988.50
30 - 34	31,648	265	8.37	91	2.90	11.25	988.75
35 +	8,682	67	7.72	34	3.95	11.63	988.37

\*Postneonatal death rates are computed as deaths/1000 neonatal survivors. All other rates are expressed per 1000 live births.



Table 7. Neonatal, Postneonatal, and Infant Mortality Rates and Infant Survival Rates for Levels of Maternal Education, 1975-1982 Birth Cohort

Education (Years)	Live Births	Neonatal		Postneonatal*		Infant	
		Deaths	Rate	Deaths	Rate	Mortality Rate	Survival Rate
Under 9	24,777	243	9.81	129	5.26	15.01	984.99
9 - 12	257,671	2,475	9.60	1,331	5.22	14.77	985.23
13 - 16	98,099	794	8.09	255	2.62	10.69	989.31
17 +	11,734	77	6.56	29	2.48	9.03	990.97

\*Postneonatal death rates are computed as deaths/1000 neonatal survivors. All other rates are expressed per 1000 live births.

8). The gains were directly related to the systematic decline in postneonatal mortality. The increase from inadequate to intermediate prenatal care decreased postneonatal mortality 37.8%, while the increase from intermediate to adequate prenatal care decreased postneonatal mortality 49.8%. Overall, the increase in prenatal care from inadequate to adequate decreased the risk of death during the postneonatal period 3.2-fold.

With respect to neonatal mortality, no trend was recognizable. Neonatal mortality in the inadequate and adequate levels of prenatal care exhibited similar rates. Infants born with intermediate levels of prenatal care were 1.8 times more likely to die during the neonatal period as compared to infants born with either inadequate or adequate levels of prenatal care.

## Discussion and Conclusions

Starfield<sup>1</sup> suggested that factors which influence neonatal and postneonatal mortality are mutually exclusive. Through comparative mortality statistics from various countries, Starfield related declines in postneonatal mortality to rising standards of living. Pharaoh and Morris<sup>2</sup> had previously, through similar methodologies, concluded that factors prominently implicated in postneonatal deaths were of "social" rather than "medical" origins. Our results substantiate, for Oklahoma, the contentions of these investigators.

With respect to low birthweight, between 1975 and 1982 low-birthweight infants (less than 2500 grams) comprised 7% of resident live births, 69.3% of neonatal deaths, 28.2% of postneonatal deaths, and 55.8% of all infant deaths. Conjointly, 10.4% of mothers receiving inadequate prenatal care gave birth to low-birthweight infants, whereas only 5.1% of infants born to mothers receiving adequate prenatal care were of low birthweights. Among infants of mothers receiving less than adequate care, 8.5% were of low birthweights, and 71.1% died during the

first 28 days of life. Twenty-nine percent of the deaths during the postneonatal period were infants of mothers obtaining less-than-adequate prenatal care and were born with low birthweights. In comparison, infants with normal birthweights and whose mothers received adequate prenatal care comprised 30.9% of neonatal deaths and 68.9% of postneonatal deaths.

Both maternal age and maternal education provided independent predictive capabilities for neonatal and postneonatal mortality, respectively. Twenty-five percent of neonatal deaths occurred in infants of mothers less than 20 years of age; 21.8% of these births occurred in infants of mothers under 18 years of age. In comparison, infants born to mothers 20 through 29 years of age comprised 62.4% of neonatal deaths. Similarly, 29.8% of deaths during the postneonatal period were in infants with mothers under 20 years old, 5.8% with mothers under 18, and 63.0% with mothers between the ages of 20 and 30. Older mothers (35 years of age or more) were associated with 8.3% of infant deaths, 1.8% neonatally and 1.9% postneonatally. Maternal education was primarily related to postneonatal mortality. Seventy-eight percent of infant deaths were in infants of mothers receiving less than 13 years of formal education; 27.4% of these deaths were during the postneonatal period, and 7.0% occurred in infants of mothers with less than 9 years of education.

Increasing the quality and accessibility of prenatal care should reduce poor pregnancy outcomes as assessed by low birthweight and, as a result, reduce infant mortality.<sup>8</sup> Though much of this reduction will be effected through declines in neonatal mortality, coincident reduction in postneonatal mortality can be expected. In the years 1975 and 1976 versus 1981 and 1982, an 8.8% reduction in the proportion of low-birthweight live births resulted in a 35.8% decline in neonatal deaths. However, this reduction in low-birthweight infants spawned only a 6.5% decline in postneonatal mortality. Increasing the qual-



Table 8. Neonatal, Postneonatal, and Infant Mortality Rates and Infant Survival Rates By Level of Prenatal Care (Kessner Index), 1975-1982 Birth Cohort

Level of Care	Live Births	Neonatal		Postneonatal*		Infant	
		Deaths	Rate	Deaths	Rate	Mortality Rate	Survival Rate
Unknown	62,575	393	6.28	138	2.22	8.48	991.51
Inadequate	10,535	84	7.97	114	10.94	18.79	981.20
Intermediate	126,757	1,750	13.80	857	6.81	20.57	979.43
Adequate	186,611	1,362	7.30	635	3.42	10.70	989.30

\*Postneonatal death rates are computed as deaths/1000 neonatal survivors. All other rates are expressed per 1000 live births.

ity and quantity of infant health care will undoubtedly greatly benefit neonatal mortality rates. However, the recent phenomenon of "postponing death"<sup>6</sup> may mask the true postneonatal mortality rate by delaying imminent neonatal deaths.

In summary, results of this evaluation support evidence that, with the exception of birthweight, factors associated with neonatal death were independent of those factors that best predicted postneonatal mortality. Age at death in the neonatal period was predicted significantly by combinations of birthweight, length of gestation, maternal age, and prenatal care. Age at death during the postneonatal period was related primarily to birthweight and maternal educational attainment.

Strategies for reducing postneonatal mortality must be designed primarily to reduce cause-specific mortality for preventable causes of death. The fact that lower maternal education was related to significantly increased postneonatal mortality implies increasing maternal awareness of signs and symptoms of potentially lethal, yet treatable, disorders may decrease postneonatal mortality rates. Correspondingly, increasing accessibility to clinical infant care would augment maternal educational programs. □

## References

1. Starfield B: Postneonatal mortality. *Ann Rev Public Health*, 1985; 6:21.
2. Pharaoh POD, Morris JN: Postneonatal mortality. *Epidemiol Rev*, 1979; 1:170.
3. Committee to Study the Prevention of Low Birthweight: *Preventing Low Birthweight*. Institute of Medicine, National Academy Press, Washington, DC, 1985.

4. Kessner DM, Singer J, Kalk CE, Schlesinger ER: *Infant Death: An Analysis by Maternal Risk and Health Care*. Contrasts in Health Status. Vol 1. National Academy of Sciences, Institute of Medicine, Washington, DC, 1973.
5. Nugent PM: Development, quality and use of the Kessner Index in North Carolina. *Network News*, 1985; 1:8.
6. Schlesselman JJ: *Case-Control Studies: Design, Conduct Analysis*. Oxford University Press, New York, NY, 1985.
7. Buehler JW, Hogue CJR, Zaro SM: Postponing or preventing deaths? Trends in infant survival, Georgia, 1974 through 1981 *JAMA* 1981; 253:3564.

James C. Duke, MS, is currently a doctoral candidate in the Department of Biostatistics at the University of Oklahoma Health Sciences Center and expects to complete his doctoral work this fall. A member of the American Public Health Association, his area of primary interest is perinatal epidemiology.

Richard R. Lorenz, MSPH, earned his degree in biostatistics at Loma Linda University in 1973. He holds memberships in the American Public Health Association, Association of Vital Records and Health Statistics, and American Statistical Association.

Sara Reed DePersio, MD, MPH, is a clinical professor in the Department of Obstetrics and Gynecology at the University of Oklahoma College of Medicine. Currently she chairs the OSMA's Maternal Mortality Committee and the Oklahoma County Medical Society's Mental Health Committee and is president of the National Association of Maternal and Child Health and Crippled Children's Programs. Dr DePersio earned her medical degree at the University of Tennessee in 1965. She is a Fellow of the American College of Preventive Medicine.

# Surgical Management of Peripheral Nerve Injuries

GHAZI M. RAYAN, MD

**The surgical management of peripheral nerve injuries requires sound knowledge of nerve anatomy and pathology, including the various degrees of injury. When accurate diagnosis is made and surgery is indicated, sound judgment in the timing of surgery and the method of repair or reconstruction as well as rehabilitation, is necessary for achieving satisfactory functional results.**

In his book *The Hand: Its Disabilities and Diseases*<sup>1</sup> C. W. Cutler, Jr., wrote the following about injuries of major peripheral nerves: "Severing of any of them will, if unrepaired, seriously cripple the hand, either through resultant muscular paralysis and atrophy or through interference with sensation so necessary to the usefulness and safety of the member. Careful restoration of their continuity is therefore necessary." Forty years later G. E. Omer, Jr., wrote, "Laceration usually results in neurotmesis. Total loss of nerve function following this injury demands exploration and suture of the affected nerve."<sup>2</sup> The concept that calls for the need to surgically repair a severed major peripheral nerve was and is still true today.

Treatment of nerve injury falls into two main categories — nonsurgical and surgical. The goal of nonsurgical treatment is to prevent the development of irreversible changes in the denervated tissues. Neglecting the nonsurgical aspect of treatment may lead to serious consequences and compromise the ultimate result of even the best surgical repair.

## Etiology

Peripheral nerve lesions are caused by a variety of agents including mechanical deformation, frostbite, burns, peripheral vascular diseases, local injections, and radiation.<sup>3</sup> Mechanical agents are the most common and important cause of peripheral nerve injuries. They include laceration, compression, traction, friction, and missile wounds, and may be associated with fractures, dislocations, and obstetrical injuries, as well as anesthesia and coma. Various degrees of nerve damage may occur depending on the severity of mechanical deformation.

## Anatomy

Sound knowledge of peripheral nervous system anatomy is a prerequisite to managing its injuries. A peripheral nerve contains nerve fibers, connective tissue, blood vessels, lymphatics, and its own nerve supply. A nerve fiber has an axon, Schwann cell with its nuclei, and Schwann cell sheath, which may or may not be myelinated. A myelinated nerve fiber has one axon surrounded by many layers of myelin per Schwann cell over a segment known as the internode, while unmyelinated fibers have several axons enveloped by a single Schwann cell. Between internodal segments, nodes of Ranvier are devoid of myelin.

Each nerve fiber is surrounded by endoneurium. The nerve fibers group together forming fascicles, and each fascicle is enveloped by the perineurium. Group fascicles are separated by the inner or interfascicular epineurium, and the whole nerve trunk is surrounded by external epineurium. The endoneurium, perineurium, and epineurium form the connective tissue framework of the peripheral nerve.

From the Section on Hand Surgery, Department of Orthopaedic Surgery & Rehabilitation, University of Oklahoma Health Sciences Center.

Send reprint requests to G. M. Rayan, MD, Section on Hand Surgery, Department of Orthopaedic Surgery, OUHSC, PO Box 26901, Oklahoma City, OK 73190.



Peripheral nerves are supplied by two vascular systems, an extrinsic system of vessels that accompanies the nerve and an intrinsic system that consists of epineural, perineural, and endoneural vascular plexi running longitudinally, with extensive anastomoses among all these vessels as well as between the extrinsic and intrinsic systems. A peripheral nerve can be mobilized and separated from its extrinsic blood supply along its whole length without disturbance of intraneural circulation.<sup>4</sup> Functionally, the nerve fibers are designated sensory, motor, and autonomic.

### Classification

Two classifications currently exist for peripheral nerve injuries. Seddon<sup>5</sup> classified peripheral nerve lesions into three types: (1) Neurapraxia is the mildest form of injury; all nerve components remain intact but there is temporary motor paralysis and subjective sensory manifestations in the form of numbness and tingling as a result of local conduction block. Spontaneous clinical recovery occurs in a few weeks or, occasionally, a few months. An example of neurapraxia is compression neuropathy. (2) Axonotmesis is a more severe form of nerve injury, with disruption of the axons without damage to other components of the nerve trunk. Following axonotmesis, a process of Wallerian degeneration occurs, followed by regeneration. Clinically, there is complete loss of motor, sensory, and sympathetic functions as well as lack of response to electrical stimulation distal to the level

of injury. The prognosis for recovery is good, but the time required for functional recovery is greater than with neurapraxia. An example of axonotmesis is crush injury. (3) Neurotmesis is the most severe type; complete division of the nerve trunk occurs. Stab wounds, gunshot wounds, and severe traction are examples of such injury. Recovery does not occur in this type of injury without surgical intervention.

Sunderland<sup>3</sup> classified peripheral nerve lesions into five degrees. First degree is the same as Seddon's neurapraxia. Second degree is the same as Seddon's axonotmesis. With third degree there is damage to the internal structures of the fascicles, but the perineurium is intact. With fourth degree the fascicles are transected with their perineurium, but the epineurium is intact. In fifth degree there is a complete loss of nerve continuity; it is the same as Seddon's neurotmesis. Functional recovery will not occur following type four and five injuries without surgical intervention.

The peripheral nervous system has a response to injury different from other tissues in the body. Following any degree of nerve injury except first degree, a process of degeneration occurs, mainly distal to the level of the injury, in the form of a breakdown of the myelin sheath. In addition, a process of regeneration takes place proximally in the form of proliferation of the schwann cells and distal migration of the growing axons.<sup>6</sup>

Traction injuries may vary from first to fifth degree, depending upon the amount of traction applied. An example of traction injury is brachial plexus damage resulting from motorcycle accidents. Compression neuropathy may be due to internal compression or external compression; it may be acute or chronic and varies from first- to third-degree nerve injury. Examples of internal compression neuropathy are carpal tunnel syndrome and posterior interosseous syndrome.<sup>7</sup> Examples of external compression neuropathy are Saturday night palsy, a tight cast or splint,<sup>8</sup> and handcuff neuropathy.<sup>9</sup> Third-degree injury is the most severe and may result in neuroma incontinuity due to intraneural fibroses that may require surgical neurolysis.



**Fig 1** Intra-operative photograph showing interfascicular nerve grafting of the radial nerve in a 28-year-old woman who sustained a close-range gunshot wound to the arm with fracture of the humerus and segmental damage to the radial nerve. The donor graft is the sural nerve.

### Diagnosis

Diagnosis of a suspected peripheral nerve injury in the upper extremity should include a detailed history and an examination of the three major nerves of the upper extremity, namely median, ulnar, and radial. An accurate diagnosis of peripheral nerve lesions requires a basic knowledge of anatomy, including the



sensory and motor distribution of each nerve in the upper extremity. Sensibility testing includes the Weber two-point discrimination test, von Frey monofilament testing, pick-up test, and an assessment of pseudomotor activity.<sup>10</sup> The Weber two-point discrimination test is of value especially in diagnosing nerve lacerations (eg, digital nerve injury) in the emergency room. Von Frey monofilament testing is of particular value in diagnosing early compression neuropathy where a two-point discrimination test might indicate no injury. During evaluation of motor function in the upper extremity, awareness of anomalous innervation including the Martin-Gruber anastomosis between median and ulnar nerves in the forearm and the Riche-Cannieu anastomosis between the motor branch of the median nerve and the deep branch of the ulnar nerve in the wrist area is required.

### Timing of Surgery

Primary neurorrhaphy is nerve repair carried out the day the injury occurs; a delayed primary repair is one that is performed within two weeks of the time of injury. Secondary neurorrhaphy is repair performed three or more weeks after the injury occurs. The condition of the nerve, the wound, the patient, and the surgeon are all important factors that should be taken into consideration before nerve repair is performed. In the presence of favorable conditions, nerve repair should be done as soon as possible. However, if the extent of nerve damage cannot be evaluated, the wound is heavily contaminated, the patient is unstable, or the surgeon is uncomfortable, primary repair should not be performed. Instead delayed primary repair or an early secondary repair should be done. Unsatisfactory results are to be expected if nerve repair is performed more than six months after injury occurs (ie, late secondary repair). Poor results, on the other hand, are expected after one year because irreversible changes that take place in the denervated muscle cells will interfere with return of motor function.

### Materials and Methods of Nerve Repair

The use of magnification is very desirable and is important for obtaining optimal functional results following peripheral nerve surgery. It is the best way to assure topographical alignment and matching of the various fascicles. It can be achieved by using surgical loupes or the operative microscope, the latter being essential for fascicular nerve repair and nerve grafting. A basic microinstrument set and fine monofilament nylon or prolene suture material (8-0



**Fig 2** Nine months later, the Tinel sign migrated to the distal forearm (X). The patient gained some wrist extension.

to 11-0) swagged on a microneedle (130-50 microns) should be used. There are two basic types of nerve repair, epineurial and either individual or group fascicular:

- *Epineurial repair* is performed by placing the sutures through the epineurium of the nerve trunk. It is the standard and most commonly used technique. It can be used in primary or secondary neurorrhaphy. It is particularly indicated in nerves that have many groups of fascicles (polyfascicular) which cannot be easily separated, identified, or matched.

- *Individual fascicular repair* is performed by matching the fascicles and placing the sutures in the perineurium. This is best done in oligofascicular areas, eg, digital nerve, ulnar nerve at the elbow, or radial nerve in the spiral groove.

- *Group fascicular repair* is performed by identifying and coapting the fascicle groups and placing the sutures in the interfascicular or internal epineurium.

Both individual and group fascicular repairs have limited applications. The surgeon attempting fascicular repair must know the internal or cross-sectional microanatomy of the individual peripheral nerve and be skilled in microsurgical technique. Fascicular repairs are easier to perform in primary and delayed primary repair than in secondary repair. The indications for individual fascicular repair are fewer than for group fascicular repair. The main indications are a partially severed small nerve in which few fascicles are damaged and a "blow out" type of injury where fascicle injury has occurred at different levels, such as partial injury to a digital nerve. Indications for group fascicular repair are mixed motor and sensory nerve injuries in which groups of fascicles can be properly identified, aligned, and matched, partially severed major nerves, and nerves composed of few fascicles. The disadvantage of individual fascicular and group fascicular repair is promotion of intraneural scar tissue.



Figs 3 & 4 A year and a half postoperatively, the patient gained full and strong wrist extension ( $M_4$ ) and full finger extension.

## Nerve grafting

Nerve grafting is the use of a donor nerve (eg, sural nerve) to bridge a defect in a nerve trunk following injury. Whenever possible, nerve repair should be done by closing the gap between the nerve stumps instead of by nerve grafting; this can be achieved sometimes by mobilizing the proximal and distal nerve stumps or by flexing the adjacent joints. If, following these maneuvers, nerve repair cannot be achieved without tension, then nerve grafting should be considered.

The early results of nerve grafting were not encouraging because of the disparity in size between the nerve trunk and the small donor cutaneous nerve, or because of central necrosis when a large donor nerve was used. The results following interfascicular nerve grafting, a concept introduced by Millesi, were encouraging. With this technique, multiple small cutaneous donor nerve segments are connected to the groups of fascicles within the nerve trunk (Figs 1-4). The results following nerve graft are more predictable than those following nerve repair under tension.<sup>11</sup> Moneim identified the following indications for nerve grafting: (1) Failure of recovery after primary nerve repair, (2) unsutured laceration if nerve injury is more than three weeks old and when the gap between nerve ends is more than 2 cm after all scar tissue is removed, and (3) primary loss of nerve substance following open avulsion injuries. Nerve injuries from gunshot wounds and closed fractures should be followed for some time before surgical exploration is indicated.<sup>12</sup>

## Rehabilitation

The involvement of the surgeon does not end with the restoration of nerve continuity and mechanical repair. Following peripheral nerve surgery, a program

of range-of-motion exercises, splinting, muscle strengthening, and sensory re-education should be employed. After two to three weeks of temporary immobilization, range-of-motion exercises are begun to prevent joint stiffness. Splinting can be used sometimes to prevent deformity or to enhance function, eg, the use of a C-splint or thumb web splint in a case of median nerve injury. A lumbrical bar or ulnar nerve cuff can be used in cases of ulnar nerve palsy in order to block the metacarpophalangeal joint hyperextension and clawing of the fingers, which predispose to stiffness of the proximal interphalangeal joints. A wrist cock up splint with dynamic finger extension can be used to treat radial nerve palsy. Improvement of motor and sensory function after peripheral nerve surgery can be achieved with resistive exercises to improve motor strength and sensory re-education to improve hand sensibility. The latter should be started when the perception of 30 cps tuning fork and moving touch have returned.

Motor and sensory evaluations for assessing recovery are done once every four to six weeks. Motor function evaluation can be done by manual muscle testing using the Highet system, which divides muscle power into six groups,  $M_0$ - $M_5$ .<sup>13</sup> Sensory evaluation is performed by following the migration of Tinel sign, touch perception, vibration, and two-point discrimination. Dellon et al<sup>14</sup> have shown that the pattern of recovery of sensibility occurs in the following sequence: first, pain, followed by vibration 30 cps, moving touch, constant touch, and vibration 256 cps. Two-point discrimination and the von Frey monofilament test should be utilized only after recovery of all previously mentioned functions. Jabaley et al<sup>15</sup> suggested that a number of factors (eg, age) other than successful axonal regeneration influence the patient's performance following nerve repair.



## Conclusion

The objectives of surgical treatment are to reveal the nature and extent of nerve injury and to deal with the pathology accordingly. This may be in the form of neurolysis, nerve repair, or nerve grafting. The objectives of nonsurgical treatment, on the other hand, are to maintain the denervated parts and tissues in the best possible condition by employing the appropriate therapy program. It is useful when surgery is not indicated, while waiting for recovery in cases of mild injury, and following surgical treatment, prior to and after the onset of clinical recovery.



## References

1. Cutler CW Jr.: *The Hand: Its Disabilities and Diseases*. Pg 238, W.B. Saunders Company, Philadelphia and London, 1942.
2. Omer GE: Results of untreated peripheral nerve injuries, *Clinical Orthop. & Related Research*, pg 15, #163, March 1982.
3. Sunderland S: *Nerve and Nerve Injuries*. New York, Churchill Livingstone, 1978.
4. Lundborg C, Rydevik B: Effects of stretching the tibial nerve of the rabbit. A preliminary study of the intraneural circulation and the barrier function of the perineurium. *J Bone Joint Surg*, 55B:390, 1973.
5. Seddon HJ: Three types of nerve injury. *Brain*, 66:237-288, 1943.
6. Gorio A, Millesi H, Mingrino S: *Post-traumatic Peripheral Nerve Regeneration, Experimental Basis and Clinical Implications*. Raven Press, New York, 1981.
7. Rayan GM, Conner S: Posterior interosseous nerve paralysis and amyloid neuropathy of multiple myeloma. *Clin Orthop & Related Research*, pg 202, #171, November & December 1982.
8. Rayan GM, O'Donoghue DH: Ulnar digital compression neuropathy of the thumb caused by splinting, *Clin Orthop & Related Research*, pg. 170, #175, May 1983.
9. Rayan GM, Foster DE: Handcuff compression neuropathy, *Orthopaedic Review*, Vol XIII, #9, pg 81, September 1984.
10. Wilgis EFS: Techniques for diagnosis of peripheral nerve loss, *Clin Orthop & Related Research*, pg 8, #163, March 1982.
11. Millesi H: *Reappraisal of Nerve Repair*. Surgical Clinics of North America, Vol 61 #2, April 1981.
12. Moneim MS: Interfascicular nerve grafting, *Clin Orthop & Related Research*, pg 65, #163, March 1982.
13. Highet WB, Holmes W: Traction injuries to the lateral popliteal nerve & traction injuries to peripheral nerves after sutures, *Br J Surg* 30:212, 1943.
14. Dellon AL, Curtis RM, Edgerton MT: Evaluating recovery of sensation in the hand following nerve injury. *Johns Hopkins Medical Journal*, 130:235, 1972.
15. Jabaley ME, et al: Comparison of histologic and functional recovery after peripheral nerve repair. *J Hand Surg*, pp 119-130, vol 1, no 2, 1976.

Ghazi M. Rayan, MD, is chief of the Section on Hand Surgery, Department of Orthopaedic Surgery & Rehabilitation, University of Oklahoma Health Sciences Center. He has been named an associate professor of orthopedic surgery and rehabilitation, effective next month. Dr Rayan specializes in hand and microsurgery and is a member of the American Academy of Orthopedic Surgeons, American Society for Surgery of the Hand, American Association for Hand Surgery, and Eastern Mediterranean Hand Society. He earned his medical degree at Alexandria (Egypt) University in 1973.

## Coming in July . . .

Manuscripts being considered for publication in the July JOURNAL include a report on spider bites and a discussion of prostaglandins and psychiatry. Already scheduled is Part III of the series "Endoscopic Laser Therapy for Gastrointestinal Disorders," a look at the use of laser therapy in neoplastic disease. And, of course, there will be a large special section including photographs and the complete proceedings from this year's Annual Meeting in Tulsa.



# Endoscopic Laser Therapy for Gastrointestinal Disorders

## Part II: Gastrointestinal Hemorrhage Not Associated with Peptic Ulcer Disease

(Second of four parts)

MARK H. MELLOW, MD

**This article summarizes the use of endoscopic laser photocoagulation in treatment of a variety of gastrointestinal bleeding disorders. The major focus is on gastrointestinal angiodysplasia, a heretofore uncommonly considered source of acute and/or chronic blood loss.**

In addition to peptic ulcers, other major sources of upper gastrointestinal hemorrhage include gastrointestinal angiodysplasia, Mallory-Weiss lesions (mucosal tears at the gastroesophageal junction), diffuse gastritis, and esophageal varices. Laser experience with these lesions will be reviewed here.

### Gastrointestinal Angiodysplasia

Angiodysplastic lesions are vascular malformations seen in association with a variety of medical conditions (Table 1). The most widely known, but not the most common, of these conditions is the hereditary condition of Osler-Weber-Rendu. In this disorder (incidence 5 per 100,000), angiodysplastic lesions are seen in numerous sites of the body, most importantly nasal mucosa leading to epistaxis, oral cavity (tongue and buccal mucosa), skin (fingertips, palms), and gastrointestinal tract (Fig 1). Angiodysplastic lesions are also seen in association with chronic renal disease and may be an important source of chronic and/or acute recurrent bleeding in patients with renal failure. In fact, in a recent large series, gastric or duodenal angiodysplasias accounted for over half the cases of recurrent GI bleeding in patients with chronic renal failure.<sup>1</sup>

Other important angiodysplasia-associated conditions include diffuse cardiovascular disease, with or without aortic stenosis, and organs previously involved by irradiation treatment. Patients with cirrhosis may have gastroduodenal angiodysplastic lesions, as may certain patients with scleroderma.

Angiodysplastic lesions are becoming much more widely recognized as important sources of chronic and/or acute and recurrent gastrointestinal bleeding. Typically, the lesions will be bright red, either flat or raised, and may have fingerlike projections emanating from the central spot. They may range from a few millimeters in size to almost circumferential, these most commonly being seen in the right colon (Fig 2).

Several investigators have reported significant benefit from laser therapy, as judged by serial observations prior to and following the index therapeutic laser endoscopy, in patients with both the hereditary and nonhereditary angiodysplastic syndromes. Mean hemoglobin levels increased, and there was a significant decrease in number of transfusions and hospitalizations in laser-treated patients.

Table 1. GI Angiodysplasia

Associated conditions
Hereditary (Osler-Weber-Rendu)
Renal disease
Cardiovascular disease (inc aortic stenosis)
Radiation
Cirrhosis
Scleroderma

Mark H. Mellow, MD, Division of Gastroenterology, Oklahoma City Clinic, 701 Northeast 10th Street, Oklahoma City, OK 73104.



**Fig 1.** Multiple arteriovenous malformations on the tongue (and upper lip) in a patient with Osler-Weber-Rendu syndrome. These lesions are often much less obvious while patients are anemic or acutely volume depleted.

Both argon and YAG lasers have been used for treatment (Fig 2). While the largest series have been performed with the argon laser, similar results have been obtained with the YAG.<sup>2</sup> It might be noted that while most lesions are within reach of standard endoscopes, some patients, especially those with the Osler-Weber-Rendu syndrome, have predominantly small bowel angiodysplasia. Use of a pediatric colonoscope has allowed us to gain entry into the proximal few feet of jejunum. On one occasion, we performed intraoperative endoscopy, enabling us to see and treat lesions in the jejunum and proximal ileum as the surgeon telescoped the bowel over the endoscope.

Serial observations have shown that angiodysplastic lesions will recur, especially in patients who have numerous lesions at time of diagnosis. Thus, some form of post-treatment endoscopic surveillance is necessary. The frequency of endoscopic surveillance will depend upon the pretreatment severity of bleeding, the number of lesions found at initial therapeutic endoscopy, and most importantly, the stability of the patient's hemoglobin and the status of fecal occult blood testing. Unfortunately, no agents have been identified that will protect against recurrence. We do employ histamine antagonists after treatment temporarily, as treatment will often produce some small mucosal ulcerations, but no agent has been shown to be really helpful in preventing recurrences. It is known, however, that the use of salicylates and other nonsteroidal anti-inflammat-



**Fig 2a.** Arteriovenous malformation, seen in gastric mucosa.

ory agents are associated with a significant increase in re-bleeding potential. Thus, if at all possible, these agents should not be used in patients found to have gastrointestinal angiodysplasia.

As mentioned above, angiodysplastic lesions of the gut are becoming increasingly more recognized as causes of acute and chronic gastrointestinal (GI) bleeding. Many patients previously thought to have had bleeding from ulcer disease because of nonspecific findings on routine x-ray studies will, upon careful endoscopic evaluation, be found to have angiodysplasia.

## Complications

As with acutely bleeding peptic ulcers, the major complication associated with laser treatment of angiodysplasias is perforation (reported to be less than 1%). Serosal thermal injury has been described in a few patients treated for large angiomas of the right colon. This syndrome is manifested by fever, abdominal distension, nausea, and vomiting, with air seen in the colonic wall on abdominal radiography, in the absence of free peritoneal air. Such patients have been treated nonoperatively, with nasogastric suction and antibiotics. It is in the area of the right colon that the most caution is necessary, as the wall thickness, especially in the cecum, is much less than that throughout the remainder of the gastrointestinal tract. This predisposes the bowel wall to full-thickness injury. It should be noted that not every angiodysplastic lesion encountered is suitable for laser therapy. In some patients, surgery will still be required.





**Fig 2b.** Two arteriovenous malformations, after laser photocoagulation. White area represents edema, and vessels are now contracted.

## Esophageal Varices

In the single controlled randomized study of YAG laser treatment of acutely bleeding esophageal varices, the laser was demonstrated to be very effective in stopping bleeding, but the re-bleeding rate was very high and no difference from controls could be demonstrated in subsequent transfusion requirements or survival.<sup>3</sup> Thus, while the laser can be helpful in certain instances for immediate cessation of bleeding, most endoscopists would utilize another treatment modality, such as injection sclerotherapy.

Mallory-Weiss tears (mucosal tears at or near the gastroesophageal junction) have been successfully treated by many investigators. No controlled trials exist, but the lesions are technically easy to treat, and bleeding usually stops abruptly upon laser photocoagulation.

## Lower Gastrointestinal Hemorrhage

Based upon important new studies by Jensen and Machicado at UCLA, it now appears that angiodysplastic lesions of the colon are commonly responsible for acute lower intestinal bleeding.<sup>4</sup> Other important sources include diverticula, neoplasms, and focal colitis. Another very important source of suspected lower gastrointestinal hemorrhage is bleeding emanating from an upper gastrointestinal source, most commonly a duodenal ulcer (Table 2). In Jensen's study, emergency colonoscopies were performed after cleansing by the ingestion of (or nasogastric intubation of) new balanced electrolyte solutions (eg, Golytely). This solution washes out intestinal con-

**Table 2. Etiology of "Lower" GI Bleeding**  
(Bleeding per rectum, negative nasogastric aspirate)  
(Jensen et al, 1985)

Colonic angiodysplasias	29%
Colonic neoplasms	12%
Duodenal ulcers	12%
Small bowel lesions	10%
Focal colitis	10%
Colonic diverticula	7%
Others (polypectomy, hemorrhoids, endometriosis)	7%
Unknown	13%

tents effectively and allows early colonoscopy. Early colonoscopy in acute lower gastrointestinal bleeding is very important, as barium enemas will frequently either miss the source of bleeding or be misleading (eg, diverticula seen which are not the source of bleeding). Arteriography is frequently unhelpful also. The emergency colonoscopy, like the emergency upper endoscopy, has the added advantage of offering therapeutic as well as diagnostic opportunities.

## Conclusion

Those patients with gastrointestinal bleeding in whom therapeutic (eg, laser) endoscopy would be most helpful include: (1) Patients whose clinical bleeding behavior would suggest that the bleeding is unlikely to stop spontaneously (ie, continuous bleeding for >4 hours after admission to hospital; recurrent bleeding following admission); (2) patients, whatever the nature of their bleeding, whose underlying medical conditions are such that surgery should be avoided; and (3) patients with recurrent or chronic bleeding, in whom angiodysplastic lesions should be considered.

## References

1. Zuckerman, GR, et al: Upper gastrointestinal bleeding in patients with chronic renal failure. *Annals of Internal Medicine*; 102:588-593, 1985.
2. Rutgeerts P, et al: Neodymium-YAG laser treatment of gastrointestinal angiomas. *Gastrointestinal Endoscopy*; 29:166, 1983 (abstract).
3. Fleischer D: Endoscopic Nd: YAG laser therapy for active esophageal variceal bleeding. *Gastrointestinal Endoscopy*; 31:4-9, 1985.
4. Jensen DM, Machicado GA, Tapa JL: Emergent colonoscopy in patients with severe hematochezia. *Gastrointestinal Endoscopy*; 29:177, 1983 (abstract).

*Mark H. Mellow, MD, is a clinical associate professor of medicine at the University of Oklahoma College of Medicine. He has been a lecturer and instructor at numerous endoscopic laser surgery courses for physicians throughout the US. A 1968 graduate of the New York Medical College, Dr Mellow holds memberships in many professional organizations.*





## Special Supplemental Feeding Program for Women, Infants, and Children

A national study evaluation of the Special Supplemental Feeding Program for Women, Infants, and Children (WIC) supports the conclusion that WIC improves the diets of pregnant women and children.

The recently released five-year evaluation by the US Department of Agriculture shows that infants who participate in WIC have increased intakes of iron and vitamin C, two nutrients important for proper growth and development.

The study shows that pregnant women who participate in WIC are more likely to enroll in prenatal care during the first trimester of pregnancy and have an adequate number of prenatal visits, a critical factor for the successful outcome of pregnancy.

The study also shows that participation in WIC increases the gestation period and reduces the likelihood of premature delivery. WIC increases the birth weight of infants, and consequently, reduces the health risks faced by low-birth-weight babies. Participation in WIC reduces late fetal deaths and may reduce the death rate of newborns.

The evaluation indicated that WIC participation increases the likelihood of children having regular health care and being adequately vaccinated. Improved cognitive performance was also noted.

According to the study, WIC does not increase total family food expenditures. It does, however, increase spending for WIC-type foods and decrease spending for meals away from home.

The federally funded WIC program is administered through local health departments. It is available to pregnant and breastfeeding women, infants, and children under five years of age who meet income and nutritional guidelines.

DISEASE	March 1986	TOTAL TO DATE		
		This Year	Last Year	5 Yr. Avg.
AMEBIASIS	0	1	4	3
CAMPYLOBACTER INFECTIONS	14	39	41	—
ENCEPHALITIS, INFECTIOUS	3	4	10	7
GIARDIA INFECTIONS	13	42	50	—
GONORRHEA (Use ODH Form 228)	899	3030	2952	3820
HAEMOPHILUS INFLUENZAE				
INVASIVE DISEASE	22	59	61	—
HEPATITIS A	32	78	139	128
HEPATITIS B	17	35	45	58
HEPATITIS, NON-A NON-B	8	12	18	—
HEPATITIS UNSPECIFIED	4	15	22	49
MEASLES (RUBEOLA)	2	2	0	1
MENINGITIS, ASEPTIC	4	11	7	14
MENINGITIS, BACTERIAL				
(non-meningococcal, non H. Influenzae)	8	19	16	21
MENINGOCOCCAL INFECTIONS	5	9	10	13
PERTUSSIS	6	20	22	17
RABIES (Animal)	6	13	26	42
ROCKY MOUNTAIN SPOTTED FEVER	1	1	4	2
RUBELLA	0	0	0	0
SALMONELLA INFECTIONS	13	51	67	73
SHIGELLA INFECTIONS	7	29	41	62
SYPHILIS (Use ODH Form 228)	12	45	49	56
TETANUS	0	0	0	0
TUBERCULOSIS	19	48	58	76
TULAREMIA	1	1	1	1
TYPHOID FEVER	1	1	0	1

Diseases of Low Frequency	Total to Date This Year	
ACQUIRED IMMUNE DEFICIENCY SYNDROME	2	
BRUCELLOSIS	1	
LEGIONNAIRES DISEASE	4	
MALARIA	1	
REYE SYNDROME	2	
TOXIC SHOCK SYNDROME	12	
<b>RABIES</b>		
MAYES	Skunk	1
LINCOLN	Skunk	1
WASHITA	Skunk	1

### *Oklahoma Center for Neurologic Sciences*

## **Surgery for epilepsy now available in Oklahoma City**

Until now, Oklahoma citizens who have been diagnosed as having complicated epilepsy and who might be candidates for surgical treatment of the disease had to travel to medical centers in other parts of the country for this highly specialized surgery.

A new service at Oklahoma City's Oklahoma Memorial Hospital, the Oklahoma Center for Neurologic Sciences, now makes it possible for these patients to be treated without leaving the state.

The Oklahoma Center for Neurologic Sciences is a 20-bed dedicated unit that provides comprehensive services for medically and surgically treated diseases of the brain, with a special emphasis on the treatment of complicated epilepsy. It is one of less than fifteen centers in the nation where surgical treatment of epilepsy is available.

Both neurologists and neurosurgeons care for patients in the center. "Patients with medically treatable conditions, such as Parkinson's disease, epilepsy, migraine, strokes, and those conditions that must be treated surgically, such as brain tumors, aneurysms, and discs, are evaluated and treated on the unit," says Jeanne Ann King, MD, medical director.

She explains that some cases can be managed with medication at first, but eventually progress to the point where surgery must be used, as in some cases of epilepsy. The surgical treatment of epilepsy is a specialty at the center, which also serves as a regional surgical referral center. Referrals are accepted from state and regional physicians who identify patients who may be candidates for surgical therapy for epilepsy.

For the evaluation and diagnosis of patients, the unit has six beds set up for cardiac and blood pressure monitoring. Two of the beds are in rooms specifically designed for continuous monitoring of patients. The rooms feature electroencephalograph (EEG) monitoring along with videotape monitoring and observation windows so the nurses can visually monitor the patients.

Another service provided at the Oklahoma Center for Neurologic Sciences is rehabilitation following surgery. "Patients who have had epilepsy all their lives usually have other problems that will not be solved by the surgery. They may have social handicaps, emotional handicaps, or financial problems resulting from their epilepsy," comments Dr King. Rehabilitation and counseling begin while the patient is still in the center. A satellite unit for physical and occupational therapy is located in the center, and psychologists and psychiatrists are part of the epilepsy treatment team.

Funding for the Oklahoma Center for Neurologic Sciences was allocated by the Oklahoma Teaching Hospitals in fiscal year 1985. The center is part of the Comprehensive Oklahoma Program for Epilepsy (COPE), a cooperative effort to assure quality of care by the various Oklahoma City agencies that provide services to patients with seizure disorders. □



**Michael J. Haugh, MD**, Tulsa, (right) chairman of the Board of Trustees of the Oklahoma State Medical Association, accepts from AMA President Harrison Rogers, MD, a plaque commending the OSMA's increase in membership over last year. The presentation was made during the AMA National Leadership Conference in Chicago in February.



## Hospitals fight for survival — their own and their patients'

Rural hospitals that offer maternity services face financial pressures that threaten to close their doors, despite the fact that many of these hospitals provide a vital link in the perinatal health care system, according to a report from an Iowa physician.

Small community hospitals, each having fewer than 500 deliveries annually, are currently the site of approximately 37% of hospital births in the state of Iowa, observes Herman A. Hein, MD, University Hospitals, Iowa City. Neonatal mortality rates for these hospitals are comparable with those for larger hospitals handling cases of equal risk, Hein says. Also comparable are incidence and survival of very-low-birth-weight-infants, occurrence of neonatal deaths relative to the total birth population, and incidence of neonatal morbidity.

By accepting mostly low-risk births and by stabilizing higher-risk newborns for transport to larger hospitals, small maternity services are both efficient and cost effective, suggests Hein in the *Journal of the American Medical Association*. "Because these hospitals provide valuable services in Iowa's perinatal care system, their closure may seriously compromise perinatal health care for rural Iowans."

Hospitals offering maternity services are currently available in 91 of Iowa's 99 counties, Hein says, adding that small community hospitals represent 81.7% of the state's maternity hospitals, and in most counties are the only hospital facility available. A recent study revealed that 31 of 32 Iowa hospitals reporting operating losses during 1983 were hospitals with small maternity services. Reduced Medicare payments to small hospitals and diagnosis-related group payment mechanisms have contributed to the crisis, Hein says.

"As health care becomes driven by cost and cost containment, and if hospital occupancy rates continue to fall, more small and rural hospitals will have difficulty making ends meet and maintaining themselves and their maternity services," notes Luella Klein, MD, of Emory University School of Medicine, Atlanta, in an accompanying editorial. Obstetric services often represent a financial loss to hospitals because of staff and equipment requirements and escalating liability premiums, she adds.

While not all small rural maternity services are

necessary, they do provide the benefit of the social, psychological, and family support of the local community and avoid prolonged hasty travel at the onset of labor, Klein observes. To survive, however, small hospitals must be able to provide safe delivery for the mother and resuscitation and stabilization for the newborn. This means availability of certain emergency resources and access to larger hospitals with neonatal intensive care units. In addition to the financial constraints on individual hospitals, cuts in federal funding are seriously threatening this system of regionalized perinatal care. □

### *Blood collection agencies launch "look back"* **Program to seek recipients of AIDS-tainted blood products**

The nation's blood collection agencies will begin a major effort to locate all patients who received transfused blood from donors later found to have antibody to the AIDS virus (HTLV-III), according to an April report in *American Medical News*.

The American Red Cross, the American Association of Blood Banks, and the Council of Community Blood Centers will enlist the help of their member agencies, hospitals, and physicians in their "look back" program, says national affairs editor Sari Staver. Approximately 2% of adults and 14% of infants and children diagnosed with AIDS are believed to have contracted it from transfused blood. Since last year, the agencies have been screening blood for antibody to HTLV-III and discarding all blood found to be antibody positive after repeated testing.

About 85% of the 12 million annual blood donations are from people who have donated before, Staver says. The new program would determine whether an antibody-positive donor has donated before, and would trace the donated plasma, platelets, or red cells to the recipients. The agencies hope to identify nearly all recipients of possibly contaminated blood products; they expect the greatest number to be found during the first year of the program, with numbers gradually decreasing from the elimination antibody-positive donors. □





## Providing Quality Rehabilitative Care

Since 1972 Physical Restorative Services has been providing quality rehabilitative care. Staffed with licensed physical therapists, occupational therapists and speech pathologists, we work directly with the physician to coordinate rehabilitation. This involves up-to-date medical treatments and state-of-the-art equipment that is sensitive, yet adaptive to the patient's special needs.

We meet requirements for all forms of insurance and are Medicare certified.

There are four Physical Restorative Service locations in Oklahoma City to serve your patients. For inquiries about services, contact our administrative offices at 840-9515.

**Near Baptist Hospital**  
6430 N. Portland

**Next to Hillcrest Hospital**  
2149 S.W. 59th

**Bethany**  
7530 N.W. 23rd

**Near Mercy Hospital**  
13321 N. Meridian



**PHYSICAL RESTORATIVE  
SERVICES, INCORPORATED**

**ELK CITY COMMUNITY HOSPITAL  
IS ON THE UPBEAT**

WE HAVE A GOOD PRACTICE  
OPPORTUNITY IN  
INTERNAL MEDICINE/CARDIOLOGY

CONTACT HOSPITAL ADMINISTRATOR  
COMMUNITY HOSPITAL  
ELK CITY, OK  
405 225-2511

**ELK CITY IS OKLAHOMA'S BEST  
KEPT SECRET**

Report blames training, personal attitudes

## Physicians failing to diagnose drug abuse problems

More than half of all patients with alcohol abuse, other drug abuse, or mental problems obtain their medical care from primary care physicians, most of whom fail to diagnose, treat, or refer such patients properly, suggests a recent report.

As many as 19% of the United States adult population (almost 30 billion people) suffer from substance abuse or mental disorders, say Douglas B. Kamerow, MD, MPH, of the National Institute of Mental Health (NIMH), and colleagues. Costs of these conditions (including direct costs of treatment and support as well as indirect costs such as productivity loss) reached nearly \$218 billion in 1983, the researchers say. They estimate that more than 108,000 deaths each per year result from substance abuse and mental disorders.

The study found that nearly 70% of persons affected by one of these conditions sought some form of medical care during the previous six months, while only one-fifth stated they made a visit for mental health purposes. "A great potential exists in primary care for prevention, detection, treatment, and referral of these patients," the researchers say in the *Journal of the American Medical Association*. "Primary care physicians, however, have not been very successful at diagnosing and treating substance abuse and mental disorders because of inadequate training, patients' attitudes, and the constraints of the health care system."

Medical schools devote less than 1% of their required teaching hours to an integrated approach to alcoholism and drug abuse, the researchers report. Psychiatric rotations may focus only on inpatient units, they observe, and few schools require any clinical experience in caring for those with alcohol and

other types of drug abuse. Postgraduate training also appears limited in addressing the scope of mental illness and substance abuse, they say. In addition, many physicians may not consider substance abuse a disease.

Another barrier to effective treatment is negative patient attitudes toward these disorders, the researchers say. Patients may not consider emotional, alcohol, or other drug problems as "legitimate" topics to discuss with a general physician. The present system of third-party reimbursement also inhibits the process by reimbursing more for procedures than for taking time to talk with patients and investigating such problems.

The Alcohol, Drug Abuse, and Mental Health Administration (ADAMHA) has developed recommendations for continued research, improved physician education, and increased emphasis on care of these disorders by organized medicine. □

**OSMA**  
**Physician Recovery Hotline**  
**(405) 691-7318**

*"Buying any other car . . . anywhere else,  
is a Grimm alternative."*

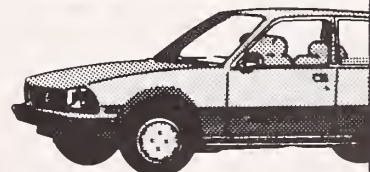
 **NISSAN**



**Mercedes-Benz**



**PEUGEOT**



**Siggi Grimm  
Motors**

2007 E. 11th Street • 582-1151  
TULSA

 **NISSAN**

  
**MERCEDES  
BENZ**  
 **PEUGEOT**



**"I thought I was totalled..."**



**"Look at that mess.** It used to be a car. I used to be in it.

*"I thought I was totalled...but my doctor sent me to The Institute.*

*"Those people expect you to make a comeback. And they won't take 'no' for an answer. Lucky for me."*



Professional therapy helps you help your patients be all they can be. Helps them make their own luck.

Call or write today for complete information.

**HARD WORK**   
**SMALL MIRACLES**



**Rehabilitation  
Institute  
of Oklahoma**

700 Northwest 7th Street  
Oklahoma City, OK 73102  
405-236-3131

300,000 a year hospitalized

## Pelvic inflammatory disease hits one million women a year

The total cost of pelvic inflammatory disease, including associated ectopic pregnancies, reached more than \$2.6 billion in 1984, and is expected to reach \$3.5 billion per year by 1990, say researchers in Atlanta.

"Pelvic inflammatory disease (PID), the most common serious complication of sexually transmitted diseases, is a medical and public health problem that has risen to alarming proportions," say A. Eugene Washington, MD, of the Centers for Disease Control in Atlanta, and colleagues. "Each year more than one million women in the United States experience an episode of PID, with at least one-fourth of them suffering one or more serious long-term sequelae," they add.

Cost figures in the report, which appeared in the *Journal of the American Medical Association*, were derived from data provided by two San Francisco hospitals and by several state and national sources. "It

is important to note that this figure may, in fact, underestimate the cost of PID and PID-associated ectopic pregnancy and infertility for several reasons," the researchers say. Among reasons cited: conservative figures were used, particularly in the area of the direct costs of infertility; incidence data used do not reflect the most recent trends; and only women between the ages of 15 and 44 were included in the study, while preliminary data suggest that disease rates may be rising among teenagers younger than 15 years of age.

"Finally, psychosocial costs are not included for PID, ectopic pregnancy (with its resultant fetal loss), or infertility. Each of these may be a major life event with an incalculable impact on an individual or family," the researchers say.

Of the more than one million American women who are affected by PID annually, at least one quarter of those experience long-term complications as a re-

INTERESTED  
IN FINE OFFICE FACILITIES  
IN A THRIVING COMMUNITY?

### EDMOND MEDICAL PLAZA

Across Street From Edmond Memorial Hospital

First Class Medical Suites  
At An Affordable Rate

WRITE: Edmond Medical Plaza Leasing Agent  
1601 Northwest Expressway, Suite 1010, Oklahoma City, Oklahoma 73118  
Or Call Clay T. Farha: 405-524-6336

EDMOND MEDICAL PLAZA  
120 North Bryant, Edmond, Oklahoma

# Always on call.



For over 20 years, C. L. Frates and Company has been recognized as "Insurance Counselors to the Oklahoma State Medical Association." Because of our long-term relationship with OSMA, we understand the priorities and time limitations of the medical profession.

We are deeply committed to meeting the special needs of doctors, staff and their families through eight OSMA-endorsed insurance plans. With OSMA owned and governed Physicians Liability Insurance Company, we offer professional liability and a comprehensive medical/hospitalization plan, PLICO HEALTH. Our other OSMA-endorsed insurance programs are disability income, business overhead expense, term life, accidental death/dismemberment, personal liability umbrella and hospital indemnity.

One of our experienced insurance specialists is available at any time, day or night, to discuss or provide a complete, no obligation, personal and business risk analysis. For more information about our OSMA-endorsed insurance plans, please give us a call.



P.O. Box 18839 • Oklahoma City, OK 73154 • 405/524-7811 • Toll Free 1-800-522-9219



## Murine typhus in south Texas said to be endemic, sporadic

Murine (endemic or fleaborne) typhus remains a public health problem in south Texas, according to a report from Austin. From 1980 to 1984, Texas had 200 reported cases of the disease, the report adds.

Jeffrey P. Taylor, MPH, and colleagues, of the Texas Department of Health, Austin, drew from a sample of 357 possible cases of murine typhus reported between the years 1980 and 1984 in Texas. Of those, 200 were confirmed murine typhus based on indirect fluorescent antibody or latex agglutination tests.

In the report in the *Journal of the American Medical Association*, the researchers describe murine typhus as caused by *Rickettsia typhi* and as being transmitted by the feces of the rat flea. "Scratching associated with the flea bite facilitates the inoculation of infected feces into the bite site or skin abrasions," they explain. The study is the first of its kind to examine the epidemiology of murine typhus using modern serologic tests, and it demonstrates the presence of an endemic source in Texas, according to the researchers.

In 1979, the year before this research began, only 70 cases of murine typhus were reported in the entire United States. Of those, 59 involved patients of Texas. The researchers cite aggressive case ascertainment and a favorable ecosystem for flea and rodent populations as contributing to the prevalence of cases in

southern Texas. They add, "Endemic foci may exist in other states where only sporadic cases are reported. The epidemiology of murine typhus in Texas could provide a useful comparison for future studies in other areas of the United States."

In an accompanying editorial, Dr Theodore E. Woodward, MD, of the University of Maryland School of Medicine, states, "The American physician must now maintain an awareness of four rickettsial diseases that occur sporadically." Among those, he includes Rocky Mountain spotted fever, epidemic typhus of the Brill-Zinsser or recurrent type, squirrel-related epidemic typhus, and murine typhus. He adds, "The epidemiologic considerations are a clue to its nature. All of these rickettsial diseases may be confirmed diagnostically by appropriate serological tests." □

## Pelvic inflammatory (continued)

sult of the disease. It is among the most widespread and debilitating of diseases affecting women today. Each year, as many as 300,000 women are hospitalized with PID while another 2.5 million outpatient visits are made for its treatment. Women with acute PID have increased risk of recurrence of that disease, of chronic pelvic pain, ectopic pregnancy, infertility, and other associated complications.

To curtail the rising costs linked to PID, clinicians must implement prevention and control programs for PID and other sexually transmitted diseases, the researchers say. Clinicians must "... maintain a high index of suspicion for the wide range of clinical presentations associated with PID, and provide timely, effective treatment to patients as well as to their sex partners," they add. □

## SHEALY PAIN & HEALTH REHABILITATION INSTITUTE

For assistance in managing your difficult pain and stress patients, consider **The Shealy Institute** — America's oldest and most respected comprehensive pain and stress management clinic.

Major areas of specialization include:

- Chronic Pain Syndromes
- Spinal Cord Injuries
- Migraine & Tension Headaches
- Amputations
- Head Trauma
- Stroke

CARF accredited



3525 S. National  
Springfield, Mo. 65807  
(417) 882-0850

## Endometriosis risk factors linked to menstrual cycles

Women with short menstrual cycles and heavy menstrual flow may be at increased risk for endometriosis, say a group of Harvard researchers. Endometriosis, the aberrant occurrence of uterinelike tissue within the pelvic cavity, affects an estimated 10% to 15% of premenopausal women.

Despite this relatively high prevalence and morbidity, little has been published regarding risk factors, say Daniel W. Cramer, MD, ScD, of Harvard Medical School, Boston, and colleagues in the *Journal of the American Medical Association*. In an attempt to identify these factors, the researchers evaluated 268 women with infertility caused by endometriosis and compared menstrual characteristics and constitutional factors with those of 3,794 women who gave birth between 1981 and 1983.

"Adjusting for confounding factors, including location, age, religion, and education, women with short-cycle lengths (27 days or less) and longer flow periods (greater than or equal to one week) had more than double the risk for endometriosis compared with women with longer cycle lengths and shorter duration of flow," the researchers say.

They suggest a possible explanation for this relationship. One theory is that endometriosis is

caused by the implantation of viable endometrial cells that are regurgitated through the fallopian tubes during menstruation. The chance of this happening would be more likely in women with longer, heavier, and more frequent periods.

Women who experienced greater menstrual pain were also found to be at higher risk for endometriosis. "It is possible that some of the menstrual characteristics associated with endometriosis in this study are consequences of the disease rather than precursors to it," the researchers say, noting that dysmenorrhea is a common symptom of the condition. This does not, however, negate the importance of these characteristics as clinical markers for those at risk for the disease, the authors note. No association was found between endometriosis and tampon use.

A decreased risk for endometriosis was found to be associated with smoking and regular exercise, largely confined to women who began either habit at an early age and were heavier smokers or more strenuous exercisers. Both smoking and exercise can lower the levels of endogenous estrogen, the researchers observe, making periods lighter. They add that the health risks of smoking far outweigh any protective effect against endometriosis. □

## Shock-wave lithotripsy proves 95% effective in one session

A new study from New York Hospital-Cornell Medical Center shows extracorporeal shock-wave lithotripsy 95% effective in one-session treatment of kidney stones.

During a one-year period, 467 patients with upper urinary tract calculi received lithotripsy treatment in a study conducted by Robert A. Riehle, Jr., MD, and colleagues. Patient selection was based on criteria developed for clinical trials of extracorporeal shock-wave lithotripsy (ESWL) authorized by the Food and Drug Administration in 1984. Only 2% of treatments failed to disintegrate the targeted stone, the researchers say. "Complications were minimal," they add in their report in the *Journal of the American Medical Association*.

Lithotripsy is a new procedure in which kidney stones can be disintegrated by shock waves focused on the stones; there is no damage to surrounding human tissue. Patients are immersed in a large tub filled with water, and a high energy shock wave is

focused on the stone. The wave energy released upon impact disintegrates the stone.

"Since 1980, a total of 300,000 to 400,000 patients per year have been hospitalized with the diagnosis of stones in the kidney or ureter, and approximately 40% of these (more than 120,000) have undergone a surgical or endoscopic procedure for stone removal," the researchers say.

"More importantly, there is strong evidence that the incidence of kidney stone disease is increasing, suggesting that more patients afflicted by kidney stones will be seeking medical attention. If 120,000 procedures for stone removal are performed each year in the United States at the average patient cost per procedure of \$10,000, the total cost to society for stone intervention exceeds \$1.4 billion per year.

"Thus, emphasis on prevention as well as less invasive and complicated surgical treatment are of interest to both health care consumers and providers," the researchers conclude. □

## Get a Grip on Overdue Accounts.



**Your Problem:** Overdue accounts. If you don't collect them, you're left with one choice: write them off.

**Your Alternative:** Tulsa Adjustment Bureau, Inc. For over 20 years, we've been helping clients in Tulsa and the surrounding area get a firm hold on overdue accounts. Our trained staff of professionals know how to get results. Results that mean money to you. And, in the event we don't collect, you won't owe us a cent. Guaranteed.

Call or drop by our office and we'll begin collecting your delinquent accounts. Let Tulsa Adjustment Bureau, Inc. show you how to get a grip on your overdue accounts today.

1754 Utica Square, Suite 283 Tulsa, Oklahoma 74114 (918) 749-1481  
In Oklahoma dial, 1-800-722-2703

T	U	L	S	A					
A	D	J	U	S	T	M	E	N	T
B	U	R	E	A	U				



**ELK CITY COMMUNITY HOSPITAL  
IS ON THE UPBEAT**

WE HAVE A GOOD PRACTICE  
OPPORTUNITY IN  
EMERGENCY MEDICINE

CONTACT HOSPITAL ADMINISTRATOR  
COMMUNITY HOSPITAL  
ELK CITY, OK  
405 225-2511

**ELK CITY IS OKLAHOMA'S BEST  
KEPT SECRET**

## IN MEMORIAM

### 1985

<i>E.C. Lindley, MD</i>	<i>March 1</i>	<i>Meredith M. Appleton, MD</i>	<i>September 7</i>
<i>Charles W. Freeman, MD</i>	<i>March 5</i>	<i>Robert A. Northrup, MD</i>	<i>September 8</i>
<i>Floyd L. Waters, MD</i>	<i>March 5</i>	<i>Carl H. Bailey, MD</i>	<i>September 9</i>
<i>Forest R. Brown, MD</i>	<i>March 19</i>	<i>Hugh B. Spencer, MD</i>	<i>September 13</i>
<i>William M. Leebron, MD</i>	<i>March 22</i>	<i>Bernice E. McCain, MD</i>	<i>September 14</i>
<i>Louis A. Martin, MD</i>	<i>March 22</i>	<i>Minard F. Jacobs, MD</i>	<i>September 30</i>
<i>Don D. Sullivan, MD</i>	<i>March 27</i>	<i>Robert Ray Rupp, MD</i>	<i>October 2</i>
<i>Hanna B. Karam, MD</i>	<i>March 28</i>	<i>William C. Moore, MD</i>	<i>October 24</i>
<i>John R. Cotteral, MD</i>	<i>April 30</i>	<i>Michael Wayne Durbin, MD</i>	<i>November 13</i>
<i>Ernest S. Kerekes, MD</i>	<i>June 8</i>	<i>Alan Luis Gorena, Jr., MD</i>	<i>November 19</i>
<i>L. Chester McHenry, MD</i>	<i>June 8</i>	<i>William Hampton Garnier, MD</i>	<i>November 20</i>
<i>Seigul J. Polk, MD</i>	<i>June 10</i>	<i>Jesse Ray Waltrip, MD</i>	<i>November 30</i>
<i>Murray M. Cash, MD</i>	<i>June 11</i>	<i>Charles F. Obermann, MD</i>	<i>December 30</i>
<i>Franklin Jesse Nelson, MD</i>	<i>June 13</i>		
<i>Robert L. Kendall, MD</i>	<i>June 13</i>		
<i>Marion K. Ledbetter, MD</i>	<i>June 21</i>		
<i>James Floyd Moorman, MD</i>	<i>July 3</i>		
<i>Oscar R. White, MD</i>	<i>August 8</i>		
<i>Maurice P. Capehart, MD</i>	<i>August 8</i>		
	<i>August 14</i>		
	<i>August 29</i>		

### 1986

<i>Alexander Poston, MD</i>	<i>January 3</i>
<i>Francis M. Duffy, MD</i>	<i>February 5</i>
<i>Edward L. Leonard, MD</i>	<i>February 14</i>



## HEALTH FINANCIAL SERVICES "CREDIT FOR HEALTH"

P.O. Box 3213 • Edmond, Okla. 73083  
(405) 348-0384

"CREDIT FOR HEALTH" has a large cash fund available to doctors' patients for paying their medical bills.

Our new plan offers interest rates that are competitive with bank rates and much more favorable than the best known credit card plans.

We now offer a non-recourse plan for members which allows patients to pay you for past and current medical services.

FOR MORE INFORMATION CALL HEALTH FINANCIAL SERVICES  
at (405) 348-0384 or 1-800-522-7120.

PLEASE SEND MORE INFORMATION ON "CREDIT FOR HEALTH" TO:

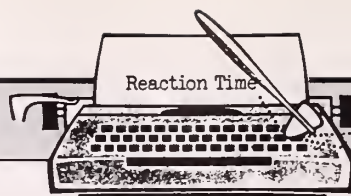
Name \_\_\_\_\_ Phone \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_

State \_\_\_\_\_

Zip Code \_\_\_\_\_



## Ponca City sixth grader gets encouraging words from OSMA

*Dear Traci:* Thank you for your letter expressing your interest in becoming a physician.

The first requirement for becoming a physician is caring. A doctor must be deeply and genuinely concerned about people.

The second requirement is dedication because becoming a physician requires many years of school and much hard work.

To become a physician you must attend high school, college, four years of medical school, and then complete a residency (actually being a doctor but working under the supervision of more experienced physicians) that can last from three to eight years.

The income of doctors varies greatly. Some, because of their skill and area of specialty, earn high

salaries and most have a very comfortable standard of living. A first-year resident physician makes about \$18,000 per year.

The most rewarding thing about being a doctor is not money but the satisfaction of helping others.

Traci, you have an excellent chance of becoming a doctor. At one time almost all doctors were men. Today, that's changed. Over one-third of all the people in medical school are women.

You asked about jobs. As long as people are sick and need aid and comfort, they will need doctors.

Good luck in the future.

*M. Michael Sulzycki*  
OSMA Associate Director

## Jim Jones answers Amen letter about VA use of generic drugs

*Dear Dr Amen:* Thank you for contacting me concerning the Veterans Administration's decision to use generic drugs and sending me a copy of your letter to them. I appreciate your taking the time to share your views with me.

Although the need to control costs throughout the government is evident, I certainly do not think we should jeopardize the health of our nation. It worries me that studies have shown generic prescriptions

giving erratic effects. If legislation on this matter comes to the floor of the House for consideration, I will keep your views in mind.

Thank you again for sharing your concern with me. If I can be of service to you in the future, please do not hesitate to contact me.

*James R. Jones*  
US House of Representatives

## BOOK SHOP

**Medical Obituaries: American Physicians' Biographical Notices in Selected Medical Journals Before 1907.** By Lisabeth M. Holloway. New York: Garland, 1981. Pp 513, \$100.

It is relatively easy to obtain biographical data for American physicians alive after 1906 because of the availability of standard directories. However, prior to that time no ready source was available for American medical biography. In this extensive new book, Lisabeth M. Holloway has indexed the obituaries of American physicians deceased prior to

1907. Her effort has resulted in a directory of more than 17,000 physicians. Obituaries have been cited from a number of different sources — some 80 state and regional medical journals, 20 homeopathic journals, and a number of other biographical sources. A particularly valuable aspect is the identification of medical officers who served in the Civil War.

Each entry provides the name of the physician, place of practice, military service, dates of birth and death, and education, as well as citations for obituaries. The obituaries cited can be reviewed for



further information. Obviously all physicians are not listed, but it is probably the most comprehensive list that has been made available to date.

This is a valuable reference which should be in all major medical libraries.

*Harris D. Riley, Jr., MD  
Oklahoma City*

**Part of Medicine, Part of Me: Musings of a Johns Hopkins Dean.** By Thomas Bourne Turner. Baltimore: Williams and Wilkins Company, 1981. Pp 245, illustrated, \$18.50.

This is the autobiography of Dr Thomas B. Turner, widely known physician and medical educator. The story is closely intertwined with the history of Johns Hopkins Medical Center.

Dr Turner was born in Prince Frederick in southern (Calvert County) Maryland. He provides an interesting account of his boyhood in a small Maryland town. We then follow him to St Johns College, a school which had a lasting impact on him, and to the Medical School of the University of Maryland, where he was graduated in 1925. After serving as a house officer at the Hospital for Women and the Mercy Hospital of Baltimore, he moved across town in 1927 to Johns Hopkins Hospital as a research fellow under Professor Warfield Longcope of the department of medicine. Turner soon developed an interest in syphilis, one of the major infectious diseases of that time. He describes the beginning of clinical investigative programs. He relates in interesting fashion both the interactions between members of the faculty and the further development of individual departments at Johns Hopkins in the 1920s and early 1930s, when the school was still quite young. There is an interesting chapter about his experience in 1929 in the Republic of Haiti where he went to establish a collaborative research program.

In 1934 Turner joined the Rockefeller Institute, where he was associated with many of the most prominent research workers in infectious diseases. After three years at the institute, he returned to Johns Hopkins as director of the department of microbiology in the School of Hygiene and Public Health.

Dr Turner entered the army during World War II and quickly became director of the Venereal Disease Control Division because of his background and training in this field. He gives a very interesting account of the medical, social, political, and other influences that play a part in the control of syphilis and venereal diseases.

At the conclusion of the war, Dr Turner returned to Baltimore to rebuild his department at Johns Hopkins. In 1957 he was invited to become Dean of the School of Medicine, the eighth person to hold that position. He candidly describes the problems faced and his association with various faculty members, other administrators, and the community. His description of events that have transpired during his lifetime and his evaluation of them constitute some of the most interesting parts of the book. Throughout the narrative he gives interesting vignettes of colleagues and friends and of various departments at Johns Hopkins. His wise advice was sought by many national and international organizations, including the National Foundation and the World Health Organization. He served as a consultant to the federal government in many capacities.

The book is very readable and is richly illustrated, particularly with photographs of Turner's colleagues. Dr Turner's gentlemanly and courtly manner and his commitment to scholarship are readily apparent.

This book will be of particular interest to those who have had contact with Dr Turner or with Johns Hopkins. It is valuable for the historical information it provides on venereal diseases and their control methods.

*Harris D. Riley, Jr., MD  
Oklahoma City*

It is much simpler to buy books  
than to read them, and easier to read  
them than to absorb their contents.

—*British Medical Journal*

#### **FAMILY PRACTITIONERS AND GENERAL INTERNIST LOOKING FOR PRIVATE PRACTICE**

There is a perfect opportunity in Shawnee, Ok., 30 miles east of Oklahoma City. We will guarantee first year income of \$60,000.00 Net.

Send all inquiries and CV to Dr. G. D. Williamson, 1533 N. Harrison, Shawnee, Ok. 74801 or call 405-275-6903.

**OFFICE SPACE AVAILABLE IN IDEAL LOCATION.  
EXCELLENT AREA FOR AM-PM CLINIC.**

## MISCELLANEOUS ADVERTISEMENTS

Miscellaneous advertising is available at the rate of \$10 per month per vertical inch or any portion thereof (ie, 1-7 lines is \$10, 8-14 lines is \$20, etc). Rates are not prorated for fractions of an inch. One inch of space contains 7 lines of copy averaging 55 characters each. The first line of the ad will automatically be set in all capital letters and averages only 38 characters. Count every letter, space, and punctuation mark as a character.

Box numbers will be assigned upon request at no additional charge. When requesting a box number, the last line of the ad must read: Reply JOURNAL BOX 00, c/o OSMA. This will add 32 characters and must be included.

Ads can be set in all boldface type if requested, for an additional \$2 per month.

Typewritten copy is preferred. Otherwise, print very legibly in ink. Ads will not be accepted on the telephone. Be sure to indicate how many times the ad is to run, and for the JOURNAL's records, please include a name, address, and telephone number where you can be reached if necessary. Ads must be received by the first of the month preceding the month of publication.

In writing your ad, remember that it will be read statewide; include complete address and/or telephone information. If discussing employment, be sure to specify whether you are seeking a position or trying to fill one.

Enclose payment with your ad and mail to: OSMA JOURNAL, 601 Northwest Expressway, Oklahoma City, OK 73118. OSMA members and state agencies will be invoiced upon request.

**PHYSICIANS NEEDED — FAMILY PRACTICE,** Orthopedist, Ob-Gyn, Internist/Oncologist, Dermatologist, Otolaryngologist and Podiatrist. 30-Physician Multispecialty Clinic/Ambulatory Surgery Center. Excellent benefits. Send CV and 3 references to Jeanne Bledsoe, Southern Plains Medical Center, 2222 Iowa, Chickasha, OK 73018, or phone 405-224-4853.

**AVAILABLE — Practice Opportunity,** equipment, and professional building. 159' frontage by 100' deep, on main street and highway. Building 2,050 square feet, brick over cement block. Clinic 1,200 square feet plus 850 square feet rented. Two hospitals within 15 miles, two nursing homes in community. Only fulltime physician in the community. Wide drawing area. Contact: T. P. Forrestal, DO, 711 Main Street, Comanche, OK 73529. 405/439-2318 or 405/439-6642.

**PHYSICIANS OF VARIOUS SPECIALTIES NEEDED** for temporary and permanent salaried positions throughout Oklahoma and adjoining states. ER and radiology physicians also needed. Janis Edwards, RN, National Health Service, 3300 N.W. 23rd, Oklahoma City, OK 73107, (405) 722-0921.

**AVAILABLE — ACTIVE SOLO GENERAL MEDICINE** practice, new equipment, and skilled staff in rural N.E. Oklahoma near Tulsa. Office next to hospital. Guaranteed first year income. Excellent recreational resources. Reply JOURNAL Box 12, c/o OSMA.

**ABA — 200 CHEM — 50 MACHINE WITH COMPUTER** print out. Bought new. Used one (1) year. \$12,500.00. Rogers Medical Center. 918-463-5103.

**FOR SALE: HILLSIDE COUNTRY HOME — TREES** and fields — 150 mi. north of Dallas. 3 bedrooms. Garage apt. Swimming pool. Barn/tool house. 1½ baths. Phone (405) 298-2314 or (405) 298-3365 or reply JOURNAL Box 13, c/o OSMA.

**FOR SALE — 4,000-SQUARE-FOOT PHYSICIAN'S OFFICE** building, 15 years old, one story, built by Marshall Erdman, and located across the street from the city's 100-bed hospital, in N.E. Oklahoma town of 17,000 serving a population of more than 45,000. The area is in need of OB-GYN (1 in town), GP-FP (3 in town), INT. MED. (3 going on 2 in town), and GEN. SURG. (2 in town). But, we have full-time ORTHO., UROL., RAD. (CAT scan, ultrasound, nuc. med.), PATH., and 24-hr. E.R. coverage. Available also, is one day a week consultation opportunities with Tulsa-based PUL. MED., CARD., ENT, ALLER., and GI. specialists. The hospital has 4 O.R.s and a cysto room, 2 delivery rooms, newborn nursery, and a 9-bed med-surg I.C.U. Lots of good opportunities here. Reply JOURNAL Box AA, c/o OSMA.

**TEXAS: EMERGENCY DEPARTMENT LOCUM TENENS** and weekend coverage available in various locations. Competitive hourly rate includes malpractice insurance. Contact: Emergency Consultants, Inc., 2240 South Airport Road, Room 32, Traverse City, MI 49684; 1-800-253-1795.

**ANESTHESIOLOGIST INTERESTED IN ESTABLISHING** a practice based on Obstetrics and Gynecology. Start up Financial Assistance available. Send CV to Medical Director, Box 205, Oklahoma City, OK 73102.

**BECKMAN ELECTROLYTE. 2 POTASSIUM & SODIUM** — Reasonable. Rogers Medical Center. 918-463-5103.

**ANESTHESIOLOGIST — 78-BED J.C.A.H. HOSPITAL,** averaging over 100 surgeries a month. Contact Administrator, Elk City Community Hospital, P.O. Box 2339, Elk City, OK 73648, 405-225-2511, ext. 301.

**PHYSICIAN NEEDED — FAMILY PRACTICE. 78-BED** acute care hospital. Excellent opportunity, has stable patient population with great growth potential. Guaranteed income if approved by the Medical Staff. Contact Pat Thomason, Mission Hill Memorial Hospital, 1900 Gordon Cooper Dr., Shawnee, Oklahoma 74801, (405) 273-2240.

**PRIMARY CARE PHYSICIAN — IMMEDIATE NEED** for urgent care/continuing care center. New facility consists of X-ray, lab, pharmacy. Compensation based on minimum 40-hour week plus bonus based on productivity. Reply JOURNAL Box 14, c/o OSMA.

**FOR SALE — NEW EQUIPMENT FOR 2 EXAM ROOMS.** Midmark 100 tables, office desk, chair and miscellaneous. Reasonable. Call (405) 238-3849.

**PROVEN PRACTICE. CHIEF OF STAFF PHYSICIAN** retiring. Clinic with private care hospital, nursing home and apartments provide substantial patient base. Guaranteed income, large staff including P.A. for E.R., professional management. Call Jim (405) 594-2292.





YEARS

Thank you for your loyal support



**DYAZIDE<sup>®</sup>**

25 mg Hydrochlorothiazide/50 mg Triamterene/SKF

**SK&F CO.**



**On nitrates,  
but angina still  
strikes...**



# After a nitrate, add ISOPTIN<sup>®</sup> (verapamil HCl/Knoll)

**To protect your patients, as well as their quality of life,  
add Isoptin instead of a beta blocker.**

**F**irst, Isoptin not only reduces myocardial oxygen demand by reducing peripheral resistance, but also increases coronary perfusion by preventing coronary vasospasm and dilating coronary arteries — both normal and stenotic. These are antianginal actions that no beta blocker can provide.

Second, Isoptin spares patients the beta-blocker side effects that may compromise the quality of life.

With Isoptin, fatigue, bradycardia and mental depression are rare. Unlike beta blockers, Isoptin can safely be given to patients with asthma, COPD, diabetes or peripheral vascular disease. Serious adverse reactions with Isoptin are rare at recommended doses; the single most common side effect is constipation (6.3%).

Cardiovascular contraindications to the use of Isoptin are similar to those of beta blockers: severe left ventricular dysfunction, hypotension (systolic pressure <90 mm Hg) or cardiogenic shock, sick sinus syndrome (if no artificial pacemaker is present) and second- or third-degree AV block.

So, the next time a nitrate is not enough, add Isoptin... for more comprehensive antianginal protection without side effects which may cramp an active life style.



**ISOPTIN. Added  
antianginal protection  
without beta-blocker  
side effects.**



# ISOPTIN® (verapamil HCl/Knoll)

80 mg and 120 mg scored, film-coated tablets

**Contraindications:** Severe left ventricular dysfunction (see *Warnings*), hypotension (systolic pressure < 90 mm Hg) or cardiogenic shock, sick sinus syndrome (except in patients with a functioning artificial ventricular pacemaker), 2nd- or 3rd-degree AV block. **Warnings:** ISOPTIN should be avoided in patients with severe left ventricular dysfunction (e.g., ejection fraction < 30% or moderate to severe symptoms of cardiac failure) and in patients with any degree of ventricular dysfunction if they are receiving a beta blocker. (See *Precautions*.) Patients with milder ventricular dysfunction should, if possible, be controlled with optimum doses of digitalis and/or diuretics before ISOPTIN is used. (Note interactions with digoxin under *Precautions*.) ISOPTIN may occasionally produce hypotension (usually asymptomatic, orthostatic, mild and controlled by decrease in ISOPTIN dose). Elevations of transaminases with and without concomitant elevations in alkaline phosphatase and bilirubin have been reported. Such elevations may disappear even with continued treatment; however, four cases of hepatocellular injury by verapamil have been proven by rechallenge. Periodic monitoring of liver function is prudent during verapamil therapy. Patients with atrial flutter or fibrillation and an accessory AV pathway (e.g. W-P-W or L-G-L syndromes) may develop increased antegrade conduction across the aberrant pathway bypassing the AV node, producing a very rapid ventricular response after receiving ISOPTIN (or digitalis). Treatment is usually D.C.-cardioversion, which has been used safely and effectively after ISOPTIN. Because of verapamil's effect on AV conduction and the SA node, 1° AV block and transient bradycardia may occur. High grade block, however, has been infrequently observed. Marked 1° or progressive 2° or 3° AV block requires a dosage reduction or, rarely, discontinuation and institution of appropriate therapy depending upon the clinical situation. Patients with hypertrophic cardiomyopathy (IHSS) received verapamil in doses up to 720 mg/day. It must be appreciated that this group of patients had a serious disease with a high mortality rate and that most were refractory or intolerant to propranolol. A variety of serious adverse effects were seen in this group of patients including sinus bradycardia, 2° AV block, sinus arrest, pulmonary edema and/or severe hypotension. Most adverse effects responded well to dose reduction and only rarely was verapamil discontinued. **Precautions:** ISOPTIN should be given cautiously to patients with impaired hepatic function (in severe dysfunction use about 30% of the normal dose) or impaired renal function, and patients should be monitored for abnormal prolongation of the PR interval or other signs of excessive pharmacologic effects. Studies in a small number of patients suggest that concomitant use of ISOPTIN and beta blockers may be beneficial in patients with chronic stable angina. Combined therapy can also have adverse effects on cardiac function. Therefore, until further studies are completed, ISOPTIN should be used alone, if possible. If combined therapy is used, close surveillance of vital signs and clinical status should be carried out. Combined therapy with ISOPTIN and propranolol should usually be avoided in patients with AV conduction abnormalities and/or depressed left ventricular function. Chronic ISOPTIN treatment increases serum digoxin levels by 50% to 70% during the first week of therapy, which can result in digitalis toxicity. The digoxin dose should be reduced when ISOPTIN is given, and the patients should be carefully monitored to avoid over- or under-digitalization. ISOPTIN may have an additive effect on lowering blood pressure in patients receiving oral antihypertensive agents. Disopyramide should not be given within 48 hours before or 24 hours after ISOPTIN administration. Until further data are obtained, combined ISOPTIN and quinidine therapy in patients with hypertrophic cardiomyopathy should probably be avoided, since significant hypotension may result. Clinical experience with the concomitant use of ISOPTIN and short- and long-acting nitrates suggest beneficial interaction without undesirable drug interactions. Adequate animal carcinogenicity studies have not been performed. One study in rats did not suggest a tumorigenic potential, and verapamil was not mutagenic in the Ames test. **Pregnancy Category C:** There are no adequate and well-controlled studies in pregnant women. This drug should be used during pregnancy, labor and delivery only if clearly needed. It is not known whether verapamil is excreted in breast milk; therefore, nursing should be discontinued during ISOPTIN use. **Adverse Reactions:** Hypotension (2.9%), peripheral edema (1.7%), AV block: 3rd degree (0.8%), bradycardia: HR < 50/min (1.1%), CHF or pulmonary edema (0.9%), dizziness (3.6%), headache (1.8%), fatigue (1.1%), constipation (6.3%), nausea (1.6%), elevations of liver enzymes have been reported. (See *Warnings*.) The following reactions, reported in less than 0.5%, occurred under circumstances where a causal relationship is not certain: ecchymosis, bruising, gynecomastia, psychotic symptoms, confusion, paresthesia, insomnia, somnolence, equilibrium disorder, blurred vision, syncope, muscle cramp, shakiness, claudication, hair loss, macules, spotty menstruation. **How Supplied:** ISOPTIN (verapamil HCl) is supplied in round, scored, film-coated tablets containing either 80 mg or 120 mg of verapamil hydrochloride and embossed with "ISOPTIN 80" or "ISOPTIN 120" on one side and with "KNOLL" on the reverse side. Revised August, 1984

2385



**KNOLL PHARMACEUTICAL COMPANY**  
30 NORTH JEFFERSON ROAD, WHIPPANY, NEW JERSEY 07981

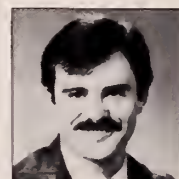
2406

## EMPLOYEES APPRECIATE THE PAYROLL SAVINGS PLAN.

JUST ASK THE  
PEOPLE AT THE  
BOEING COMPANY.

"My folks gave me a Bond for my birthday every year. Now I can do the same for my kids."

—Vaughn Hale



"It's certainly a painless way to save. The money comes directly out of my paycheck every two weeks."

—Florence Perry



"This is one way I can support my government and save at the same time."

—Douglas Scribner



U.S. Savings Bonds now offer higher variable interest rates and a guaranteed return. Your employees will appreciate that. They'll also appreciate your giving them the easiest, surest way to save.

For more information, write to: Steven R. Mead, Executive Director, U.S. Savings Bonds Division, Department of the Treasury, Washington, DC 20226.



**U.S. SAVINGS BONDS**  
Paying Better Than Ever

A public service of this publication.



# INVESTORS: HAVE YOU CONSIDERED THE ARABIAN HORSE?



*Legendary...*



*Exciting...*



*Cherished*

## A MATCHLESS INVESTMENT

Most investments are quite boring in terms of your involvement with them. Many require blind faith, and may offer an unsteady return for a large fee.

In contrast, an investment in a Windy Meadow Farm Arabian is one you and your family will see, appreciate and enjoy.

And with our reasonably priced program for acquisition, breeding, promotion and marketing, you too can participate in an exciting industry.



24401 N. May Avenue, Edmond, OK 73034  
Phone: (405) 341-3891

- ☐ Please mail literature about the Arabian Horse and Windy Meadow Farm.
- ☐ I would like to be informed of upcoming seminars, clinics and events at Windy Meadow Farm.

NAME: \_\_\_\_\_

ADDRESS: \_\_\_\_\_

CITY/ST. \_\_\_\_\_ ZIP \_\_\_\_\_

PHONE: \_\_\_\_\_

Mail to: Windy Meadow Farm  
24401 N. May  
Edmond, OK 73034

# NOTICE

## TO ALL PLICO-INSURED PHYSICIANS

The 1986 PLICO professional liability insurance policy you received contains a special endorsement or requirement making attendance at an OSMA/PLICO-sponsored Loss Prevention Seminar **mandatory** at least once in every three years. If a physician has never attended a seminar, he or she must attend one during 1986. If a physician has not attended a program since 1983, they must attend this year, also. Any physician needing to attend in 1986, and failing to do so, will not be eligible for renewal of their insurance for calendar year 1987.

### **SEMINAR ATTENDANCE MANDATORY**

#### **1986 Seminar Schedule\***

<b>June 28, Sat., 2-5 p.m.</b>	<b>Woodward Holiday Inn, (Jct. US 270 &amp; First Street)</b>
<b>July 19, Sat., 10 a.m.-1 p.m.</b>	<b>Oklahoma City OUHSC, East Lecture Hall, Basic Science Building</b>
<b>August 16, Sat., 10 a.m.-1 p.m.</b>	<b>Oklahoma City OUHSC, East Lecture Hall, Basic Science Building</b>
<b>Sept. 10, Wed., 6-9 p.m.</b>	<b>Lawton Holiday Inn, 3134 Cache Road</b>
<b>Sept. 17, Wed., 6-9 p.m.</b>	<b>Muskogee Holiday Inn, 800 South 32nd</b>
<b>Sept. 24, Wed., 6-9 p.m.</b>	<b>McAlester Holiday Inn, US Hwy 69 Byp South</b>
<b>Oct. 8, Wed., 6-9 p.m.</b>	<b>Enid Ramada Inn, 3005 W. Garriott Road</b>
<b>Oct. 22, Wed., 6-9 p.m.</b>	<b>Oklahoma City Conference Center, 5901 N. May (58th &amp; May)</b>
<b>Oct. 23, Thur., 6-9 p.m.</b>	<b>Tulsa Sheraton Inn Skyline East, 6333 E. Skelly</b>

#### **LOSS PREVENTION SEMINAR REGISTRATION**

Please register the following physician to attend the 1986 Loss Prevention Seminar indicated below:  
(PLEASE TYPE OR PRINT)

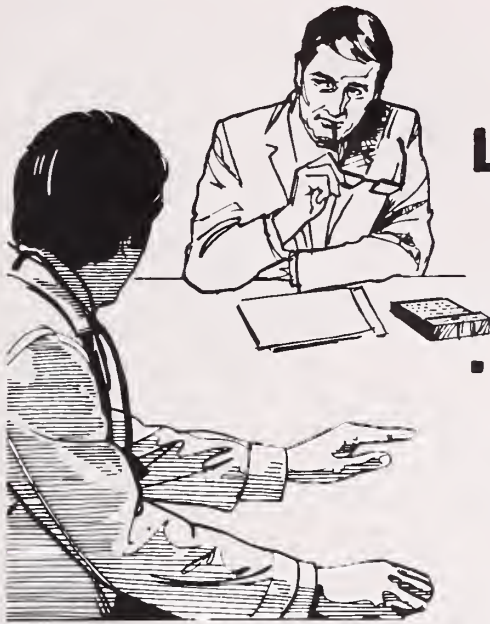
PHYSICIAN'S NAME: \_\_\_\_\_

ADDRESS: \_\_\_\_\_ CITY/STATE \_\_\_\_\_ ZIP \_\_\_\_\_

SEMINAR DATE AND CITY: \_\_\_\_\_

Mail form to OKLAHOMA STATE MEDICAL ASSOCIATION, 601 NW EXPRESSWAY, OKLAHOMA CITY, OK 73118.





## Let's talk about your commitment ... and ours.

***You have made  
a commitment  
we understand.***

Your personal commitment to provide the best possible medical care is your foundation for those you serve.

The long years of preparation, education, working hours, and attentiveness, are behind . . . and ahead of you.

You are at home with medical decisions and thinking clearly during critical times. You deserve to be served by folks who make the same professional commitments in their field as you in your own.

Your own financial planning is now more important than ever. You know that government regulation, insurance costs, insurance payment controls, and the general expenses related to operating your practice changes everyday.

Today, a sound financial plan, backed by a financial institution with a solid commitment to the medical industry, positions you to accomplish your goals.

Whether you are starting your practice, expanding it, buying equipment, a home, or any other financial consideration, our commitment is to present you with a package of financial alternatives you will be pleased with.

Your commitment is important to us. Your financial needs are important as well.

We are anxious to discuss your needs now.

Call anytime. We are committed to serve Oklahoma Medical Professionals.

*Stillwater National Bank business and real estate loans:*

**SIXTH & MAIN, STILLWATER, OK 74074 .....(405) 372-2230**

**1616 E. 19TH, SUITE 203, EDMOND, OK 73034 .....(405) 340-1810**

**ELMCREST PARK OFFICE, 2700 E. 51st, SUITE 402, TULSA, OK 74105 (918) 742-8076**

(405) 372-2230



**STILLWATER NATIONAL BANK AND TRUST COMPANY**

MEMBER F.D.I.C.

SIXTH AND MAIN • STILLWATER, OKLAHOMA



# Protection that's fiscally fit.

Rising health care costs affect everyone, even those in the medical profession. Today, PLICO HEALTH can protect your risk with a remarkably cost-conscious comprehensive medical/hospitalization plan. PLICO HEALTH is offered by doctor-owned Physicians Liability Insurance Company. Designed by doctors, PLICO HEALTH is the only program created especially to meet the needs of physicians, staff and their families. At your convenience, one of our experienced insurance specialists will gladly provide you with details. For more information about our extensive, new dental plan, please give us a call.



**The Physicians Liability Insurance Company**  
P.O. Box 18171 • Oklahoma City, OK 73154 • 405/524-0801  
1-800/522-9219

# Motrin<sup>®</sup> 800 TABLETS mg

ibuprofen



Extra strength  
Convenience  
Economy



A Century  
of Caring  
1886-1986

**“High  
blood pressure  
should be a  
red flag to  
screen for  
cholesterol...”<sup>1</sup>**





**If your patients have hypertension, they probably have high cholesterol too.**

The Framingham Heart Study<sup>2</sup> showed that over two thirds of the 35 and older population in that study with systolic blood pressures over 145 mmHg also had serum cholesterol levels of 225 mg/dL or more, and 46% had levels above 250 mg/dL.

While many clinical laboratories still report 250 mg/dL as "normal" cholesterol, the NIH Consensus Development Conference Statement on Cholesterol and Heart Disease<sup>3</sup> stated that any level above 220 mg/dL is associated with a significantly increased risk of coronary heart disease.

**You need to know, because high cholesterol parallels high blood pressure as a CHD risk factor.**

Epidemiological studies and large-scale prevention trials have indicated that as with blood pressure, serum cholesterol levels are proportionately related to CHD risk.

Specifically, "...for every 10 mmHg rise in pressure, there appears to be about a 30% rise in cardiovascular risk."<sup>4</sup> "...for every one percent you go up the American cholesterol scale, your subsequent rate of heart attack rises two to three percent."<sup>5</sup>

And although the specific impact on CHD has not been determined, we know that many of the principal agents used to lower blood pressure actually increase cholesterol.

**Wytensin® lowers blood pressure effectively without raising cholesterol.**

While Wytensin is not a cholesterol-lowering agent and is not indicated for the treatment of hyperlipidemia, in controlled clinical trials<sup>6</sup> it caused a slight, sustained decrease in total cholesterol without reducing the HDL fraction or altering serum triglycerides.

At the same time, Wytensin lowered blood pressure as effectively as hydrochlorothiazide, propranolol, clonidine or methyldopa. Drowsiness and/or dry mouth, the most frequent side effects noted with Wytensin, usually diminish or disappear over time. In fact, in double-blind studies to date, discontinuance of therapy for all side effects occurred in about 13% of patients.

**Wytensin®**  
(guanabenz acetate)

**Antihypertensive therapy that does not increase cholesterol**

See important information on following page.

References: 1. Glueck CJ: Remarks in the symposium, *Blood Pressure, Cholesterol and Coronary Heart Disease*, Washington, D.C., March 31, 1985. 2. The Framingham Study, *An epidemiological investigation of cardiovascular disease*, Section 28, U.S. Dept. of Health, Education, and Welfare. 3. National Institutes of Health Consensus Development Conference Statement, 1984: Vol 5, No 7, p 4. 4. Chobanian AV: The influence of hypertension and other hemodynamic factors in atherogenesis. *Progress in Cardiovascular Diseases*, XXVI (3): 177, Nov/Dec, 1983. 5. Castelli WP: Remarks in the symposium, *Blood Pressure, Cholesterol and Coronary Heart Disease*, Washington, D.C., March 31, 1985. 6. Data on file, Wyeth Laboratories.

# Wytenzin<sup>®</sup>

(guanabenz acetate)

Antihypertensive therapy  
that does not increase cholesterol

## Brief Summary

Before prescribing, consult the complete package circular.

**Indications and Usage:** Treatment of hypertension, alone or in combination with a thiazide diuretic.

**Contraindication:** Known sensitivity to the drug.

**Precautions:** 1. Sedation. Causes sedation or drowsiness in a large fraction of patients. When used with centrally active depressants, e.g., phenothiazines, barbiturates and benzodiazepines, consider potential for additive sedative effects. 2. Patients with vascular insufficiency. Like other antihypertensives use with caution in severe coronary insufficiency, recent myocardial infarction, cerebrovascular disease, or severe hepatic or renal failure. 3. Rebound. Sudden cessation of therapy with central alpha agonists like Wytenzin may rarely result in "overshoot" hypertension and more commonly produces increase in serum catecholamines and subjective symptomatology.

**INFORMATION FOR PATIENTS:** Advise patients on Wytenzin to exercise caution when operating dangerous machinery or motor vehicles until it is determined they do not become drowsy or dizzy. Warn patients that tolerance for alcohol and other CNS depressants may be diminished. Advise patients not to discontinue therapy abruptly.

**LAB TESTS:** In clinical trials, no clinically significant lab test abnormalities were identified during acute or chronic therapy. Tests included CBC, urinalysis, electrolytes, SGOT, bilirubin, alkaline phosphatase, uric acid, BUN, creatinine, glucose, calcium, phosphorus, total protein, and Coombs' test. During long term use there was small decrease in serum cholesterol and total triglycerides without change in high-density lipoprotein fraction. In rare instances occasional nonprogressive increase in liver enzymes was observed, but no clinical evidence of hepatic disease.

**DRUG INTERACTIONS:** Wytenzin was not demonstrated to cause drug interactions when given with other drugs, e.g., digitalis, diuretics, analgesics, anxiolytics, and antiinflammatory or antifungal agents, in clinical trials. However, potential for increased sedation when given concomitantly with CNS depressants should be noted.

**DRUG/LAB TEST INTERACTIONS:** No lab test abnormalities were identified with Wytenzin use.

**CARCINOGENESIS, MUTAGENESIS, IMPAIRMENT OF FERTILITY:** No evidence of carcinogenic potential emerged in rats during a two-year oral study with Wytenzin at up to 9.5 mg/kg/day, i.e., about 10 times maximum recommended human dose. In the Salmonella microsome mutagenicity (Ames) test system, Wytenzin at 200-500 mcg/plate or at 10-50 mcg/plate in suspension gave dose-related increases in number of mutants in nine (TA 1537) of five *Salmonella typhimurium* strains with or without inclusion of rat liver microsomes. No mutagenic activity was seen at doses up to those which inhibit growth in the eukaryotic microorganism, *Schizosaccharomyces pombe*, or in Chinese hamster ovary cells at doses up to those lethal to the cells in culture. In another eukaryotic system, *Saccharomyces cerevisiae*, Wytenzin produced no activity in an assay measuring induction of repairable DNA damage. Reproductive studies showed a decreased pregnancy rate in rats given high oral doses (9.6 mg/kg), suggesting impairment of fertility. Fertility of treated males (9.6 mg/kg) may also have been affected, as suggested by decreased pregnancy rate of mates, even though females received drug only during last third of pregnancy.

**PREGNANCY:** Pregnancy Category C. WYTENSIN<sup>®</sup> MAY HAVE ADVERSE EFFECTS ON FETUS WHEN ADMINISTERED TO PREGNANT WOMEN. A teratology study in mice indicated possible increase in skeletal abnormalities when Wytenzin is given orally at doses 5 to 6 times maximum recommended human dose of 10 mg/kg. These abnormalities, principally costal and vertebral, were not noted in similar studies in rats and rabbits. However, increased fetal loss has been observed after oral Wytenzin given to pregnant rats (14 mg/kg) and rabbits (20 mg/kg). Reproductive studies in rats have shown slightly decreased live birth indices, decreased fetal survival rate, and decreased pup body weight at oral doses of 6.4 and 9.6 mg/kg. There are no adequate, well-controlled studies in pregnant women. Wytenzin should be used during pregnancy only if potential benefit justifies potential risk to fetus.

**NURSING MOTHERS:** Because no information is available on Wytenzin excretion in human milk, it should not be given to nursing mothers.

**PEDIATRIC USE:** Safety and effectiveness in children less than 12 years of age have not been demonstrated; use in this age group cannot be recommended.

**Adverse Reactions:** Incidence of adverse effects was ascertained from controlled clinical studies in U.S. and is based on data from 859 patients on Wytenzin for up to 3 years. There is some evidence that side effects are dose-related. Following table shows incidence of adverse effects in at least 5% of patients in study comparing Wytenzin to placebo, at starting dose of 8 mg b.i.d.

Adverse Effect	Placebo (%) n = 102	Wytenzin (%) n = 109
Dry mouth	7	28
Drowsiness or sedation	12	39
Dizziness	7	17
Weakness	7	10
Headache	6	5

In other controlled clinical trials at starting dose of 16 mg/day in 476 patients, incidence of dry mouth was slightly higher (38%) and dizziness was slightly lower (12%), but incidence of most frequent adverse effects was similar to placebo-controlled trial. Although these side effects were not serious, they led to discontinuation of treatment about 15% of the time. In more recent studies using an initial dose of 8 mg/day in 274 patients, incidence of drowsiness or sedation was lower, about 20%. Other adverse effects reported during clinical trials but not clearly distinguishable from placebo effects and occurring with frequency of 3% or less: Cardiovascular—chest pain, edema, arrhythmias, palpitations. Gastrointestinal—nausea, epigastric pain, diarrhea, vomiting, constipation, abdominal discomfort. Central nervous system—anxiety, ataxia, depression, sleep disturbances. ENT disorders—nasal congestion. Eye disorders—blurring of vision. Musculoskeletal—aches in extremities, muscle aches. Respiratory—dyspnea. Dermatologic—rash, pruritus. Urinary—urinary frequency, disturbances of sexual function. Other—gynecomastia, taste disorders.

**Drug Abuse and Dependence:** No dependence or abuse has been reported.

**Overdosage:** Accidental ingestion caused hypotension, somnolence, lethargy, irritability, miosis, and bradycardia in two children aged one and three years. Gastric lavage and pressor substances, fluids, and oral activated charcoal resulted in complete and uneventful recovery within 12 hours in both. Since experience with accidental overdosage is limited, suggested treatment is mainly supportive while drug is being eliminated and until patient is no longer symptomatic. Vital signs and fluid balance should be carefully monitored. Adequate airway should be maintained and, if indicated, assisted respiration instituted. No data are available on Wytenzin dialyzability.

**Dosage and Administration:** Individualize dosage. A starting dose of 4 mg b.i.d. is recommended, whether used alone or with a thiazide diuretic. Dosage may be increased in increments of 4 to 8 mg/day every one to two weeks, depending on response. Maximum dose studied has been 32 mg b.i.d., but doses this high are rarely needed.

**How Supplied:** (guanabenz acetate) Tablets, 4 mg, bottles of 100 and 500; 8 mg and 16 mg, bottles of 100. Revised 2/14/85

Wyeth Laboratories  
Philadelphia, Pa. 19101

©1984, Wyeth Laboratories.

Ad Council

## TWELVE IMPECCABLE EXCUSES FOR NOT GIVING BLOOD.

1. I think I have lumbago.
2. I'm type Z negative.
3. I'm on the grapefruit diet.
4. I gave six months ago.
5. I just got back from Monaco.
6. The lines are thirteen blocks long.
7. My mother won't let me.
8. I didn't sign up.
9. I'm going out of town.
10. Asthma runs in my family.
11. I forgot to eat this morning.
12. I'm allergic to flowering magnolia.



Each one's a doozy,  
but we're hoping you  
won't use any of them.  
Give blood through the  
American Red Cross.  
Please, don't chicken out.

**EXCUSES DON'T SAVE LIVES.  
BLOOD DOES.**

American  
Red Cross

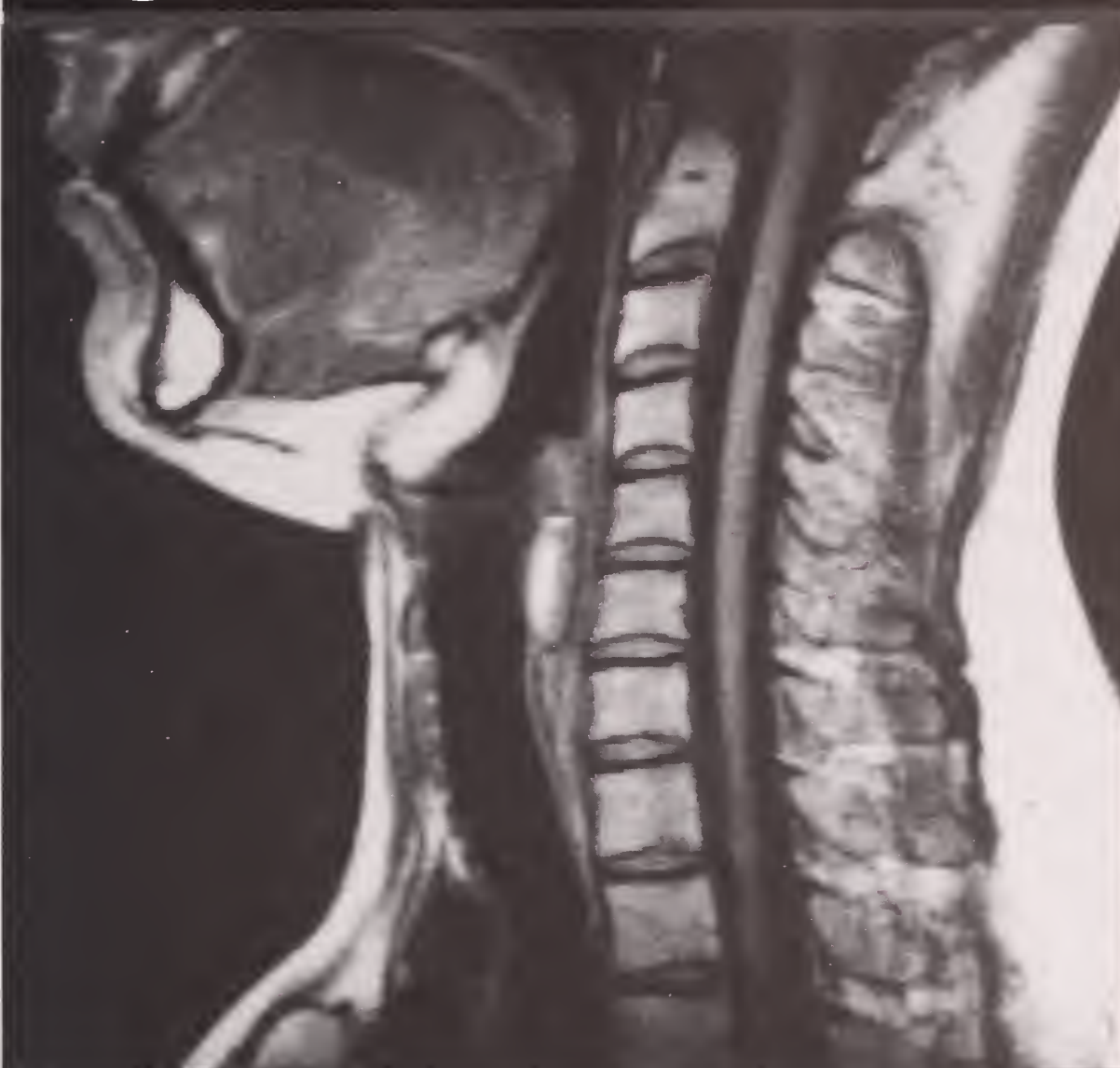






# TULSA MAGNETIC IMAGING

Convenient Outpatient Setting  
Unsurpassed Quality Images  
Competitive Charges  
MRI-experienced Radiologists



**Tulsa Magnetic Imaging's  
.5 Tesla Superconductive  
Magnet offers:**

- *Greater Diagnostic Ability*
- *Multiple Views of  
Anatomical Structures*
- *Image Quality  
Far Superior to CT*

For further information  
or consultation, call  
**582-3608.**

Tulsa Magnetic Imaging  
1430 South Utica Avenue  
Tulsa, Oklahoma 74101





Willow View Hospital is the only private, non-profit hospital in Oklahoma dedicated solely to the treatment of psychiatric illnesses of all types, among all ages.

- 24 Hour Emergency Admissions
- 93 Inpatient Beds
- Outpatient Services
- Designated by the Department of Mental Health as an Examination and Detention Facility for Detention Patients
- Child/Adolescent Programs
- Adult Program
- Senior Adult Program
- Substance Abuse Program

Accredited by JCAH  
as a Child/Adolescent and  
Adult Psychiatric Hospital

Jay T. Shurley, M.D.  
Medical Director

#### MEDICAL STAFF

John C. Andrus, M.D.  
Janita M. Ardis, M.D.  
Nolen Armstrong, M.D.  
Hugh M. Conner, Jr., M.D.  
James A. Cox, M.D.  
Phillip E. Green, M.D.  
A. A. Hellams, M.D.  
Wolfgang K. Huber, M.D.  
R. Murali Krishna, M.D.  
Harald Krueger, M.D.  
Siavash Nael, M.D.  
Robert J. Outlaw, M.D.  
Larry M. Prater, M.D.  
Moorman Prosser, M.D.  
Joe G. Savage, M.D.  
William H. Scimeca, M.D.  
Jay T. Shurley, M.D.  
Harold G. Sleeper, M.D.  
John R. Smith, M.D.  
Bal G. Vad, M.D.  
Sally Varghese, M.D.  
Shreekumar S. Vinekar, M.D.  
Fred W. Weber, M.D.



## WILLOW VIEW HOSPITAL

2601 North Spencer Road 405/427-2441  
P.O. Box 11137  
Oklahoma City, Oklahoma 73136

For information or referral, contact the office  
of the administrator.

**CARDIOVASCULAR AND THORACIC SURGERY ASSOCIATES  
THE CARDIAC SURGEONS OF OKLAHOMA CITY, INC.**

**PROFESSIONAL STAFF**

William D. Hawley, MD  
James M. Hartsuck, MD

R. Darryl Fisher, MD  
Marvin D. Peyton, MD

Scott K. Lucas, MD

Diplomates of  
American Board of Surgery  
American Board of Thoracic and  
Cardiovascular Surgery

Specializing in  
Cardiac, Vascular  
and Thoracic Surgery

Office Hours 8:30 a.m. to 5:00 p.m.  
Monday through Friday  
With 24 Hour Consultation and Referral

**1-800-522-6755**

**(405) 946-0900**

**OFFICES**

3400 N.W. EXPRESSWAY, SUITE 520  
4200 WEST MEMORIAL RD., SUITE 805  
1044 S.W. 44TH, SUITE 520

OKC, OK 73112  
OKC, OK 73120  
OKC, OK 73109



## The Total Sports Medicine Program

Professional, amateur and recreational athletes require diagnosis, treatment, surgery and rehabilitation for their active bodies.

At Oklahoma Center For Athletes, we strive for the prevention of sports injuries through proper medical management. But when those injuries do occur, the athlete deserves the finest in medical care, whether it be from an orthopedic surgeon, internist, certified sports trainer, physical therapist or exercise physiologist. A program of continued prescription physical conditioning returns the athlete to his or her peak performance level.

## OKLAHOMA CENTER FOR ATHLETES

Presbyterian Professional Building  
711 Stanton L. Young Blvd., Suite 308  
Oklahoma City, Oklahoma 73104  
(405) 271-8177



**Specializing in the diagnosis  
and treatment of allergic diseases  
in adults and children.**

MAILING ADDRESS: P.O. Box 26827, Oklahoma City, OK 73126

### MAIN OFFICE

750 Northeast 13th Street  
Near the Oklahoma Health Center  
(2 Blocks East of Lincoln Blvd.)  
Oklahoma City, Oklahoma  
(405) 235-0040

### N.W. OKLAHOMA CITY OFFICE

Mercy Doctors Tower  
4200 W. Memorial Rd., Rm. 112  
Oklahoma City, Oklahoma  
(405) 235-0040

### NORMAN OFFICE

900 North Porter, Suite 600  
Norman, Oklahoma  
(405) 235-0040

Administrator:  
G. Keith Montgomery, MHA

George L. Winn, MD†  
Robert S. Ellis, MD†\*  
Lyle W. Burroughs, MD†°  
Charles D. Haunschild, MD†\*  
James H. Wells, MD†\*  
John R. Bozalis, MD†\*  
James D. Lakin, PhD, MD†\*  
John S. Irons, MD†°  
Warren V. Filley, MD†\*

Senior Consultants:  
George S. Bozalis, MD  
Vernon D. Cushing, MD†\*

† Diplomate American Board of Allergy and Immunology  
\* Diplomate American Board of Internal Medicine  
° Diplomate American Board of Pediatrics

Research Director:  
Richard A. Strecker, DrPh



# Shawnee Medical Center Clinic, Inc.

2801 N. SARATOGA / P.O. BOX 849 / SHAWNEE, OKLAHOMA 74801 / Phone: 405-273-5801

## ALLERGY

A. M. Bell, MD\*

## ANESTHESIOLOGY CONSULTANTS

Ellis Brown, MD\*

## DERMATOLOGY

Bert C. Frichot, III, MD\*

## GENERAL SURGERY

Frank H. Howard, MD\*  
Jerold D. Kethley, MD  
S. B. VanLandingham, MD\*

## INDUSTRIAL MEDICINE

A. M. Bell, MD  
Jake Jones, Jr., MD

## INTERNAL MEDICINE

Michael W. Butcher, MD  
Merle L. Davis, MD  
Larry D. Fetzer, MD  
Eldon V. Gibson, MD\*  
D. A. Mace, MD  
J. B. Jarrell, MD\*

## NEONATOLOGY

R. K. Mohan, MD

## OBSTETRICS, GYNECOLOGY

Dean W. Papageorge, MD  
Richard E. Jones, MD\*  
Stephen E. Trotter, MD\*

## ORTHOPEDIC SURGERY

T. A. Balan, MD, FAAOS\*  
R. M. Kamath, MD, MS\* (Ortho)  
S. M. Waingankar, MD, MS\* (Ortho)

## OTORHINOLARYNGOLOGY

S. Rishi, MD\*, MS, FACS

## PATHOLOGY CONSULTANT

David L. McBride, MD\*

## PEDIATRICS

A. M. Bell, MD\*  
Jake Jones, Jr., MD\*  
R. K. Mohan, MD\*

## RADIOLOGY CONSULTANTS

William Phillips, MD\*  
Robert G. Wilson, MD\*  
Cranfill K. Wisdom, MD\*

## UROLOGY

Clifton L. Whitesell, MD

## ADMINISTRATOR

W. J. Birney

\* Board Certified



# SOUTHERN PLAINS MEDICAL CENTER, P.C.

2222 Iowa • Chickasha, OK 73018 • (405) 224-4853

Route 3 • Box 124M • Tuttle, OK 73089 • (405) 381-2391

## FAMILY PRACTICE

J.W. McDaniel, MD  
J.O. Wood, Jr., MD  
Stuart Meyer, MD

## INTERNAL MEDICINE

W.S. Harrison, MD  
D.L. Stehr, MD  
R.S. Davis, MD  
Don R. Hess, MD  
Vernon A. Vix, MD  
Randall L. Jenkins, MD

## CARDIOLOGY

Joe T. Bledsoe, MD

## GASTROENTEROLOGY

C.K. Su, MD

## PEDIATRICS

R.E. Herndon, MD  
E. Ron Orr, MD  
J.E. Freed, MD  
M.P. Escobar, MD  
Donald F. Haslam, PhD, MD

## OBSTETRICS AND GYNECOLOGY

Nancy W. Dever, MD  
Alan J. Weedn, MD

## NEUROLOGY

Andrew Gin, MD

## GENERAL & VASCULAR SURGERY

Linda M. Johnson, MD  
Virginia L. Harr, MD  
Myra Campbell, PA

## THORACIC & VASCULAR SURGERY

Paul B. Loh, MD

## OPHTHALMOLOGY

John R. Gearhart, MD

## ANESTHESIOLOGY

T. Gowlikar, MD  
Gideon Lau, MD  
M.M. Vaidya, MD

## PHYSICAL MEDICINE & REHABILITATION

Kumudini Vaidya, MD

## UROLOGY

K.T. Varma, MD  
John P. Ross, MD

## ORTHOPEDIC SURGERY

W.T. Morris, MD  
Keith W. Riggins, MD  
W.M. Ohl, PA

## ACCUTE CARE

INDUSTRIAL MEDICINE  
C.R. Gibson, MD

## RADIOLOGY (Consulting)

Medical Radiology, Inc.

## CLINICAL PSYCHOLOGY

James M. Ross, PhD

## SPEECH PATHOLOGY

Colette Ellis, Med. CCC

## ALLERGY

W.S. Harrison, MD  
R.E. Herndon, MD

## OTHER SERVICES:

AMBULATORY SURGERY FACILITY  
For Outpatient Surgical Procedures

## Fit for Life WELLNESS PROGRAM



- Weight Reduction
- Nutrition
- Stress Management
- Smoking Cessation
- Fitness

## BREAST SELF EXAM (BSE) LEARNING CENTER

Individual instruction on the technique of breast self examination for women.

## EDUCATION PROGRAMS

Medical topics of interest to the public.

## ADMINISTRATION

James W. Loy



ACCREDITED - ACCREDITATION ASSOCIATION FOR AMBULATORY HEALTH CARE, INC.



## GLASS-NELSON CLINIC

### INDUSTRIAL MEDICINE

GLEN L. BERKENBILE, MD  
GEORGE R. KRIETMEYER, MD  
DONALD W. BOBEK, MD

### PRE-EMPLOYMENT

BOB HOWLAND, PA

### PEDIATRICS

HUGH C. GRAHAM, JR., MD  
JOEL K. GIST, MD  
WILLIAM P. SIMMONS, MD

### RADIOLOGY

WILLIAM K. HICKS, MD

### GENERAL SURGERY

ROBERT S. PERRYMAN, MD  
FRANKLIN S. NELSON, MD

### INTERNAL MEDICINE & EXECUTIVE PHYSICALS

WILLIAM F. EWING, MD  
BOYD O. WHITLOCK, MD  
RICHARD H. REID, MD  
R. A. SEARCY, MD  
PHILIP W. PERRYMAN, JR., MD

### ADMINISTRATION

FRED R. STAFFORD  
GALE CLARK

1923 East 21st Street Box 52218 • TULSA, OKLAHOMA 74152 • PHONE (918) 742-3341

## MULTI-SPECIALTY CLINICAL HEALTHCARE FOR SOUTHEASTERN OKLAHOMA

### INTERNAL MEDICINE

STEVEN D. ATWOOD, M.D.  
CHARLES K. HOLLAND, M.D.  
R. KERN JACKSON, M.D.  
KENNETH R. MILLER, M.D.  
LEROY M. MILTON, M.D.

### GASTROENTEROLOGY

JAMES A. GOLLA, M.D.

### OTOLARYNGOLOGY

DONALD E. CRAWLEY, M.D.  
SAMUEL E. DAKIL, M.D.

### SURGERY

WILLIAM G. BLANCHARD, M.D.  
DAVID MacMILLAN, M.D.

### ALLERGY

PAUL S. THOMAS, M.D.

### PEDIATRICS

DELTA W. BRIDGES, JR., M.D.  
THURMAN SHULLER, M.D.  
PAUL S. THOMAS, M.D.

### RADIOLOGY

BRUCE H. BROWN, M.D.

### FAMILY MEDICINE

JOHN B. COTTON, M.D.  
WILLIAM E. GUPTON, M.D.  
STEPHEN D. SWANK, M.D.  
LARRY D. LEWIS, M.D.

### OBSTETRICS-GYNECOLOGY

ROBERT G. CATES, M.D.  
DAVID L. DOYLE, M.D.  
L. DWAIN DOYLE, M.D.  
W. RILEY MURPHY, JR., M.D.

### ADMINISTRATOR

PAUL BISHOP

# The McAlester Clinic, Inc.

1401 E. VAN BUREN AVE. • PO BOX 908 • McALESTER OK 74502 • 918 426-0240



# MEDICAL ARTS CLINIC OF ARDMORE, INC.

921 Fourteenth Avenue Northwest  
Ardmore, Oklahoma 73401

## General Surgery

THORNTON KELL, MD, FACS

\*TOM SPARKS, MD, FACS

\*WILFRED S. GAUTHIER, MD, FACS

## Obstetrics and Gynecology

†MICHAEL B. BEASON, MD

## Radiology (Consultants)

\*MICHAEL W. BROWN, MD

\*JAMES A. CHAPMAN, MD

## Pathology (Consultant)

\*CARL A. SCHWEERS, MD

## Internal Medicine

J. HOBSON VEAZEY, MD

\*CLIFFORD LORENTZEN, MD, FACP

\*DAVID D. ROSE, MD

\*JOE R. HAMILL, MD

\*KEVIN H. REED, MD

\*MY Q. TRAN, MD

## Gastroenterology

†MY Q. TRAN, MD

## Administrator

ROGER H. HUGHES

Phone: A/C 405-223-5311

\*Specialty Board Diplomate

†Specialty Board Eligible

# Orthopedic & Arthritis Center

McBRIDE CLINIC, Inc.

1111 North Dewey / Oklahoma City, Oklahoma / 232-0341

## DEPARTMENT OF ORTHOPEDICS

\*Marvin K. Margo, MD, FACS

\*James P. Bell, MD, FACS

\*Stephen Tkach, MD, FACS

\*Joseph F. Messenbaugh III, MD, FACS

\*J. Patrick Evans, MD, FACS

\*Edwin E. Rice, MD, FACS

\*Warren G. Low, MD,

\*Thomas C. Howard, III, MD

David H. Holden, MD

## DEPARTMENT OF ARTHRITIS

John A. Blaschke, MD

Mary L. Duffy Honick, MD

\*Richard J. Hess, MD, FACP

\*Jon W. Blaschke, MD

\*R. Eugene Arthur, MD

## DEPARTMENT OF OCCUPATIONAL and INDUSTRIAL MEDICINE

Jack W. Parrish, MD

\*Specialty Board Diplomate

## MANAGEMENT SERVICES

James A. Hyde, Administrator





## ORTHOPEDIC ASSOCIATES, INC.

3301 N.W. 50th  
Oklahoma City, Oklahoma 73112  
(405) 947-0911

David R. Brown, MD  
Ralph E. Payne, Jr., MD  
J. Charles Monnet, MD  
Michael O. Williams, MD

David A. Flesher, MD  
Nathan E. Bradley, MD  
Thomas H. Flesher III, MD

Diplomates of American Board of Orthopaedic Surgery

**Sports Medicine  
Arthroscopic Surgery**

**Surgery of the Spine  
Total Joint Replacement**



## THE ARTHRITIS CLINIC

Lloyd G. McArthur, PhD, MD

Winfred L. Medcalf, MD  
Robert C. Troop, PhD, MD

207 C Street NW

Ardmore, Ok. 73401

Phone (405) 223-5180

## PATHOLOGISTS

Jack M. Stephenson, M.D.  
Paul E. Kaldahl, M.D.  
Perry A. Lambird, M.D.  
Michael R. Harkey, M.D.  
Thomas A. Hosty, M.D.  
John R. Rogers, M.D.  
Hatton W. Sumner, M.D.

Ronald J. Biscopink, M.D.  
Robert C. MacKay, M.D.  
Dan F. Keller, M.D.  
Willard Aronson, M.D.  
Fay Knickerbocker, M.D.  
Lynn B. Moon, M.D.  
Peter F. Brumbaugh, M.D.



## Medical Arts Laboratory

100 PASTEUR BUILDING - 1111 N. LEE  
OKLAHOMA CITY, OKLAHOMA 73103

## PATIENT CARE FACILITIES

Pasteur Medical Bldg.  
Room 300 East  
1111 N. Lee

Memorial Professional Bldg.  
13439 N. Broadway Ext.  
Edmond, Okla. 73034

Physicians & Surgeons Bldg.  
Room 105  
1211 N. Shartel

West Laboratory  
Room 100  
3400 N.W. Expressway

North Laboratory  
Room 107  
4200 W. Mem. Rd.

South Laboratory  
Room 107  
1044 S.W. 44

East Laboratory  
Room 113  
711 Stanton Young Blvd.

Classen Laboratory  
1110 N. Classen Blvd.

## TELEPHONE FOR ALL LOCATIONS

Local ..... 239-7111      OK Toll Free ..... 1-800-942-3514

## OKLAHOMA LUNG FUNCTION LABORATORY, INC.

R.J. Dougherty, MD

- |   |  |
|---|--|
| <input type="checkbox"/> Oxygen saturation by oximetry<br>(To meet Medicare criteria for<br>continued reimbursement for home<br>oxygen use) | <input type="checkbox"/> Clinical spirometry     |
| <input type="checkbox"/> Arterial blood gas analysis  | <input type="checkbox"/> Lung volumes            |
|   | <input type="checkbox"/> Diffusing capacity      |
|   | <input type="checkbox"/> Diagnostic skin testing |

235-3338

1111 North Lee, Pasteur Building 224

235-1701

## CENTRAL OKLAHOMA AMBULATORY SURGICAL CENTER, INC.

W. Edward Dalton, MD, FACS      Paul Silverstein, MD, FACS      J. Michael Kelly, MD, FACS  
Plastic, Reconstructive & Cosmetic Surgery; Surgery of the Hand & Congenital Deformities;  
Oncologic Surgery of the Head and Neck, Burn Surgery

3301 Northwest 63rd Street, Oklahoma City, Okla. 73116

(405) 842-9732

Board Certified in Plastic Surgery  
Board Certified in General Surgery



## Oklahoma Spine/Pain Clinic

Multi-disciplinary approach  
to evaluation and treatment  
of acute or chronic musculoskeletal pain.

William N. Harsha, MD  
Diplomate American Board Orthopaedic Surgery

Doctors Medical Building  
Oklahoma City, Oklahoma 73112  
5700 N.W. Grand Blvd.  
(405) 943-9561

## OKLAHOMA UROLOGY CENTER

CHARLES L. REYNOLDS, JR., MD, INC.

Urology-Genitourinary Surgery  
Diseases Kidney-Bladder-Prostate  
Female-Male Children & Adults  
Micro Surgery for Infertility  
Prosthetic Surgery for Impotency  
Urinary Incontinence

3131 NORTHWEST EXPRESSWAY  
SUITE 201  
OKLAHOMA CITY, OKLAHOMA 73112

TOLL FREE (800) 522-8668  
OFFICE (405) 843-5761 RESIDENCE (405) 842-6420  
IF NO ANSWER (405) 523-1999

## OKLAHOMA HAND SURGERY CENTER, INC.



Carlos A. Garcia-Moral, MD, FACS

405/232-3210

711 Stanton L. Young Boulevard, Suite 510 Oklahoma City, Ok 73104



## AEROSPACE MEDICINE

CLYDE A. LYNN, BA, MPH, MD  
Board Certified, Aerospace Medicine  
Fellow, American College of Preventive Medicine  
Flight Surgeon, US Army and Navy  
Commercial Pilot and Flight Instructor, Instrument and Multi-engine  
Referrals for Medical Certification of Pilots Accepted  
by Appointment

1317 Brookhaven Blvd. Senior Aviation Examiner (405)  
Norman, OK 73069 FAA NO. 07448-1 329-2625

## ALLERGY

Northwest Medical Center Suite 602  
NORTHWEST ALLERGY CLINIC, INC.

John L. Davis, M.D.  
3330 N.W. 56th  
Oklahoma City, Oklahoma 73112  
405 843-6619

JAMES A. MURRAY, MD, INC.  
Diagnosis and Treatment of Allergic Diseases  
Adults and Children

JAMES A. MURRAY, MD  
Fellow American Academy of Allergy  
Fellow American College of Allergists  
Diplomate American Board of Allergy and Immunology

Suite 101 6465 South Yale Avenue  
Warren Professional Building (918) 492-0484  
Tulsa, Oklahoma 74177

OKLAHOMA ALLERGY CLINIC, INC.  
Specializing in the Diagnosis and Treatment of Allergic Disease

George L. Winn, MD†  
Robert S. Ellis, MD†\*  
Lyle W. Burroughs, MD†\*  
Charles D. Haunschild, MD†\*  
James H. Wells, MD†\*

John R. Bozalis, MD†\*  
James D. Lakin, PhD, MD†\*  
John S. Irons, MD†\*  
Warren V. Filley, MD†\*

Senior Consultants: George S. Bozalis, MD; Vernon D. Cushing, MD†\*

† Diplomate American Board of Allergy and Immunology  
\* Diplomate American Board of Internal Medicine  
‡ Diplomate American Board of Pediatrics

Office Address:	Mail Address:	NWOKC Office:	Norman Office:
750 NE 13th St	PO Box 26827	4200 W Memorial	900 N Porter
Okla City, OK	Okla City	Room 112	Suite 600
405-235-0040	OK 73126	405-235-0040	405-235-0040

## CARDIOVASCULAR

CARDIOVASCULAR ASSOCIATES  
Adult Cardiovascular Diseases  
Cardiac Catheterization, Aortography and Selective Coronary Arteriography  
Coronary and Peripheral Angioplasty  
Telephone Electrocardiography (24 hr. service), Treadmill  
Effort Tolerance, Hypertensive Evaluation  
\*J.J. Donnell, MD 947-2556 \*G.L. Honick, MD 943-8428  
\*J.L. Bressie, MD 946-0568 \*A.F. Elliott, MD 943-8421  
\*A.S. Dahr, MD 947-2321 \*Gary Worcester, MD 943-4134  
\*Jan Voda, MD 947-1297 \*Stanley A. Horst, MD 946-0606  
\*Certified by the American Board of Cardiovascular Disease  
Doctors Medical Building  
8th Floor 5700 N.W. Grand Blvd. Oklahoma City, Oklahoma 73112

CARDIOVASCULAR CLINIC  
Wm. Best Thompson, MD Ronald H. White, MD W.H. Oehlert, MD  
Galen P. Robbins, MD William J. Fors, MD Charles F. Bethea, MD  
Williams S. Myers, MD Fred E. Lybrand, MD  
Lawrence M. Higgs, MD Mel Clark, MD

CARDIOVASCULAR DISEASES  
Cardiac catheterization, aortography and coronary arteriography  
Coronary and Peripheral angioplasty, telephone electrocardiography  
and echocardiography  
Nuclear cardiology and Treadmill effort tolerance

CARDIOVASCULAR BUILDING  
3300 Northwest 56th Oklahoma City, Okla. 73112 Telephone 947-3341

## DERMATOLOGY

RONALD W. GILCHRIST, JR., MD  
Diseases and Malignancies of the Skin  
Oklahoma City, X-Ray and CO<sub>2</sub> Laser Therapy 632-5565  
OK 73109 3500 South Western

SKIN & SKIN CANCER CENTER, INC.

C. Jack Young, MD

Radium Therapy Hemangiomas X-Ray Therapy

CLINIC BUILDING 3434 N.W. 56th  
OKLAHOMA CITY, OKLAHOMA 946-5678

## OPHTHALMOLOGY

JAMES L. DUNAGIN, JR., MD  
Diseases and Surgery of the Eye  
Diplomate American Board of Ophthalmology  
6th and Washington 918-426-1432 McAlester, Oklahoma 74501

John W. Huneke, MD, FACS, Inc.  
Diseases and Surgery of the Eye  
Certified by the American Board of Ophthalmology  
Phone 332-1880 1414 Arlington Suite 2300 Ada, Oklahoma 74820

JAMES B. MILLS, MD 232-4222

Surgery and Diseases of the Eye  
JAY C. JOHNSTON, MD 232-5543  
Lacrimal Surgery, Dacryocystorhinostomy, Jones Tubes

Certified by the American Board of Ophthalmology  
425 NW 11th Street Oklahoma City 73103

V. JERRY SHEPERD, MD  
Diseases and Surgery of the Eye  
Certified by the American Board of Ophthalmology  
3400 N.W. 56th St. Suite G-2 Phone 946-3327 Oklahoma City 73112

## ORTHOPEDICS

DUNCAN REGIONAL ORTHOPAEDIC ASSOCIATES, INC.  
THOMAS J. EISER, MD  
ROBERT M. SIMPSON, MD  
ORTHOPAEDIC SURGERY & SURGERY OF THE HAND  
DIPLOMATES AMERICAN BOARD OF ORTHOPAEDIC SURGERY  
FELLOWS, AMERICAN ACADEMY OF ORTHOPAEDIC SURGEONS

2815 W. Elk  
OFFICE (405) 252-3400 DUNCAN, OKLAHOMA 73533

ORTHOPEDIC SURGERY AFFILIATES, INC.

1044 S.W. 44th  
Oklahoma City, Oklahoma 73109  
405-631-7444  
Dale R. Butler, MD, FACS J.A. Rosacker, MD G. David Casper, MD

HOUSHANG SERADGE, MD, FICS  
Diplomate American Board of Orthopaedic Surgery  
Hand and Reconstructive Microsurgery

1044 S.W. 44th Street, Suite 620  
Oklahoma City, Oklahoma 73109  
Phone (405) 631-4263

## ORTHOPEDICS (continued)

JOHN RAYMOND STACY, MD, FACS  
Diplomate American Board of Orthopedic Surgery  
Orthopedic and Fracture Surgeon  
Oklahoma City, Oklahoma

415 N.W. 12th St.

235-6315

## OTOLARYNGOLOGY HEAD AND NECK SURGERY

Oklahoma Otolaryngology Associates  
RAYMOND O. SMITH, JR., MD, FACS  
Head and Neck Surgery  
Facial Plastic and Reconstructive Surgery  
4200 West Memorial Road, Suite 606  
Oklahoma City, Oklahoma 73120  
Phone 405 755-1930

## PEDIATRIC SURGERY

E. IDE SMITH, MD\* WM. P. TUNELL, MD\* DENNIS J. HOELZER, MD\*

940 NE 13th Street, Oklahoma City, Oklahoma 73104

Office: 405-271-4356 After hours: 405-523-6739 (then enter your phone no.)

\*American Board of Surgery — Special Competence in Pediatric Surgery

## PSYCHIATRY

LARRY PRATER, MD  
Practice Limited to Psychiatry  
Suite 318 Classen Professional Bldg. 232-5453/272-7155  
1110 Classen Boulevard Oklahoma City, Oklahoma 73106

PSYCHIATRY  
Robert J. Outlaw, MD, FAPA  
R. Murali Krishna, MD, MAPA  
Diplomates of American Board of Psychiatry and Neurology in Psychiatry  
Shree S. Vinekar, MD, FAACP  
Diplomate of American Board of Psychiatry and Neurology  
in Psychiatry and Child Psychiatry  
John C. Andrus, MD, MAPA  
Diplomate of American Board of Psychiatry and Neurology in Psychiatry  
Thurman E. Coburn, PhD, Licensed Clinical Psychologist  
David Schwartz, ACSW, Clinical Psychiatric Social Worker  
Donna Smela, ACSW, Clinical Psychiatric Social Worker  
Suite 308 Physicians and Surgeons Building  
1211 North Shartel, Oklahoma City 73103  
(405) 272-0734

## JAY TALMADGE SHURLEY, MD

Life Fellow, American Psychiatric Association;  
Charter Fellow, American College of Psychiatrists

Emeritus Professor of Psychiatry & Behavioral Sciences  
University of Oklahoma College of Medicine  
Consultant in Neuropsychiatry, SLEEP DISORDERS CENTER, Presbyterian Hospital

Diagnosis, Management & Treatment of  
DISORDERS OF SLEEPING, WAKING, & DREAMING  
(Emphasis on Narcolepsy, Sleep Walking, Nightmares)

6406 "A" North Santa Fe  
Oklahoma City, OK 73116

(405) 840-3793

HAROLD G. SLEEPER, MD, FAPA  
Diplomate American Board of Psychiatry  
and Neurology in Psychiatry  
Adult and Adolescent Psychiatry  
2801 Parklawn Drive, Suite 505  
Midwest City, Oklahoma 73110  
(405) 733-8244

## PULMONARY DISEASE

### PULMONARY ASSOCIATES

STEPHEN N. ADLER, MD TIMOTHY L. GRODE, MD

Diplomates  
American Board of Internal Medicine  
American Board of Internal Medicine - Pulmonary Disease

Pulmonary Medicine  
Pulmonary Function and Methacholine Testing  
Pulmonary Artery (Swan-Ganz) Catheterization  
Fiberoptic Bronchoscopy  
Lung Needle Biopsy  
Critical Care Medicine

Mercy Doctors Tower  
Oklahoma City, OK 73120

4200 Memorial Road  
(405) 755-4290

### RAYMOND J. DOUGHERTY, MD

Diplomate American Board of Pulmonary Disease  
Practice Limited to Pulmonary Disease

Special Interest in Adult and Adolescent Asthma

204 Pasteur Building

Oklahoma City, Oklahoma 73103

235-1701

### NORMAN K. IMES, MD

### DENNIS M. PARKER, MD

Diplomates American Board of Internal Medicine  
American Board of Internal Medicine - Pulmonary Disease  
Consultants in Diseases of the Chest  
Fiberoptic Bronchoscopy  
Pulmonary Function Evaluation  
Intensive Care Medicine

3330 N.W. 56 Street

Oklahoma City, Oklahoma 73112

(405) 949-9400

## RADIOLOGY

### CHET BYNUM, MD

### GLENNA YOUNG, MD

Fluoroscopy  
Xeromammography

### DIAGNOSTIC RADIOLOGY

### WHOLE BODY CT SCANNING

Tomography  
Ultra Sonography

13301 N. Menden Bldg. 300  
Oklahoma City, Oklahoma 73120  
(405) 752-0186

1125 N. Porter  
Norman, Okla. 73071  
(405) 364-1071

### RADIOLOGY ASSOCIATES, INC.

JAMES T. BOGGS, MD  
ROBERT SUKMAN, MD, FACR  
WILLIAM R. ALBRACHT, MD  
ROGER B. COLLINS, MD  
GEORGE BEN CARTER, MD  
RICHARD B. PRICE, MD, FACR, DABNM  
MICHAEL A. SARTIN, MD  
RALF E. TAUPMANN, MD  
GARY G. ROBERTS, MD  
JOHN R. OWEN, MD  
HAROLD D. DAVIDSON, MD  
JAY A. HAROLDS, MD, DABNM

Diplomates American Board of Radiology  
X-Ray-Diagnosis including Ultra Sonography, Xeromammography,  
Radiation Therapy — Nuclear Medicine — CAT Scanning  
Digital Subtraction

204 Medical Tower Bldg. 848-7741  
400 Physicians Prof. Bldg. 943-9646  
700 Doctors Medical Bldg. 946-9923

Baptist Medical Center 949-3202  
Deaconess General Hospital 946-5581  
206 N.W. Med. Ctr. Bldg. 946-8999

RADIOLOGIC SPECIALTIES, LTD  
4045 Northwest 64th Street, Suite 125  
Oklahoma City, Oklahoma 73116

Practice Limited To Whole Body CT Scanning

V.C. Tisdal III, MD (405) 848-0075 Rebecca Goen Tisdal, MD

Diplomates American Board of Radiology

## SURGERY

James E. Cheatham, Jr., MD

3400 N.W. Expressway, Suite 607  
Oklahoma City, OK 73112  
948-7272

Specializing in Open Heart Surgery

ROBERT B. HOWARD, MD, FACS  
Certified American Board of Surgery  
Practice Limited to General Surgery and Diseases of the Thyroid Gland  
544 Pasteur Medical Bldg. Phone 235-2341 Oklahoma City

MICHAEL E. REIF, MD

Diplomate American Board of Surgery  
Fellow American College of Surgery  
General and Peripheral Vascular Surgery

708 Mercy Doctors Tower By Appointment 755-1750  
4200 West Memorial Road Oklahoma City, OK 73120 After Hours 232-8861

## SURGERY, COLON AND RECTAL

ROBERT J. CAPEHART, MD

1866 E. 15th St. Tulsa, Oklahoma 74104

(918) 744-5817

Practice Limited To Colon & Rectal Surgery and Colonoscopy

## SURGERY, HAND

Patrick T. Sterbank, PA  
Physician Associate

HOUSHANG SERADGE, MD, FICS  
Diplomate American Board of Orthopaedic Surgery  
Hand and Reconstructive Microsurgery

1044 S.W. 44th Street, Suite 620  
Oklahoma City, Oklahoma 73109  
Phone (405) 631-4263 631-HAND

## SURGERY, RECONSTRUCTIVE AND PLASTIC

PARAMJIT S. BAJAJ, MD, FACS  
FRCS (England), FRCS (Edinburgh)  
Certified American Board of Plastic Surgery  
Maxillofacial and Cosmetic Surgery  
Surgery of the Hand

1110 N. Classen Blvd. 235-6671  
Suite 304 Oklahoma City, Okla. 73106

LEONARD H. BROWN, MD

Diplomate American Board of Surgery  
Diplomate American Board of Plastic Surgery  
Plastic and Reconstructive Surgery  
Cosmetic Surgery

6913 S. Canton Tulsa, Oklahoma 74136 492-3964

WILLIAM J. FORREST, MD

Plastic and Reconstructive Surgery  
Surgery of the Hand

3400 N.W. Expressway

Oklahoma City

947-8760

HERBERT M. KRAVITZ, MD, FACS

Diplomate American Board of Plastic Surgery  
Reconstructive, Cosmetic and Cleft Palate Surgery

Office (405) 946-2694

2620 Northwest Expressway  
Oklahoma City, Oklahoma

## UROLOGY

GENE T. BAUMGARNER, MD, FACS  
Diplomate of the American Board of Urology  
Mercy Doctors Tower  
4200 West Memorial Road

Oklahoma City, Oklahoma 73120

(405) 755-3723

A. de QUEVEDO, MD, Inc.

Diplomate of the American Board of Urology

Suite 606

1211 N. Shartel Oklahoma City, Oklahoma 73103 232-1333

PHILIP D. DIGGDON, MD, FACS  
Diplomate of the American Board of Urology  
312 Warren Prof. Bldg, 6465 S. Yale, Tulsa, OK  
Office: (918) 492-6322 Home: (918) 492-1143  
Same day service

2801 Parklawn Dr., #300  
Midwest City, OK 73110  
(405) 737-5667

CLARK HYDE, MD 1110 N. Classen, #205  
Pediatric and Adult Urology  
Oklahoma City, OK 73106  
(405) 232-0273

BARNEY J. LIMES, MD, FACS  
1211 N. Shartel, Suite 208  
Oklahoma City, Okla. 73101  
Phone 235-0315

2801 Parklawn Dr., Suite 300  
Midwest City, Okla. 73110  
Phone 737-3538

Practice Limited to Urology  
Diplomate American Board of Urology

JOSEPH D. PARKHURST, MD, FACS  
Diplomate American Board of Urology

2345 N. Tompkins  
Bethany, OK 73008

495-6134

1214-D S. 11th  
Yukon, OK 73099

CHARLES L. REYNOLDS, JR., MD, FACS, FICS  
DIPLOMATE of the AMERICAN BOARD of UROLOGY  
DISEASES of the KIDNEY, BLADDER, and PROSTATE

3131 NORTHWEST EXPRESSWAY  
OKLAHOMA CITY, OKLAHOMA 73112  
OFFICE (405) 843-5761

RESIDENCE (405) 842-6420

IF NO ANSWER (405) 523-1999

1110 Classen Blvd.  
Oklahoma City, OK  
73106

JAMES R. WENDELKEN, MD  
Pediatric and Adult Urology  
Telephone (405) 232-0273

2801 Parklawn  
Midwest City, OK  
73110

PHILLIP H. WINSLOW, MD, FACS  
Diplomate American Board of Urology

Hours by Appointment  
(405) 765-7620  
Answering Service: (405) 765-5826

Medical Plaza  
123 Patton Drive  
Ponca City, OK 74601

**Professional card listings are available to  
OSMA members. The cards are sold in ver-  
tical increments of one-half inch at the  
rate of \$50.00 per half inch per year.**



## INDEX TO ADVERTISERS

Ayerst Laboratories ( <i>Inderal LA, Inderide LA</i> ) .	381-384
The Arthritis Clinic . . . . .	442
BMC Care Advantage . . . . .	386
The Cardiac Surgeons of Oklahoma City, Inc. . . . .	437
Central Oklahoma Ambulatory Surgical Center, Inc. . . . .	443
Copper Lake . . . . .	385
Curtis 1000 Information Systems . . . . .	378
Edmond Medical Plaza . . . . .	413
Eli Lilly Industries ( <i>Ceclor</i> ) . . . . .	380
Elk City Community Hospital . . . . .	410, 418
C. L. Frates & Co., Inc. . . . .	414
Glass-Nelson Clinic . . . . .	440
Harsha Orthopedic, Inc. . . . .	440
Health Financial Services . . . . .	419
Knoll Pharmaceutical Company ( <i>Isoptin</i> ) . . . . .	424-426
McAlester Clinic . . . . .	440
Medical Arts Clinic of Ardmore . . . . .	441
Medical Arts Laboratory . . . . .	443
Oklahoma Allergy Clinic . . . . .	438
Oklahoma Center for Athletes . . . . .	438
Oklahoma City Clinic . . . . .	IFC
Oklahoma Hand Surgery Center, Inc. . . . .	444
Oklahoma Lung Function Laboratory . . . . .	443
Oklahoma Urology Center . . . . .	444
Orthopedic & Arthritis Center . . . . .	441
Orthopedic Associates . . . . .	442
Physical Restorative Services, Inc. . . . .	409
PLICO Health . . . . .	430
PLICO Loss Prevention Seminars . . . . .	428
Prodata Medical Systems . . . . .	375
Professional Office Management . . . . .	376
Rehabilitation Institute of Oklahoma . . . . .	412
Roche Products, Inc. ( <i>Dalmane</i> ) . . . . .	IBC, BC
Shawnee Medical Center Clinic, Inc. . . . .	439
Shealy Pain & Health Rehabilitation Institute . . . . .	415
Siggi Grimm Motors . . . . .	411
SmithKline & Beckman ( <i>Dyazide</i> ) . . . . .	379, 423
Southern Plains Medical Center, Inc. . . . .	439
State Lodges . . . . .	449
Stillwater National Bank . . . . .	429
Tulsa Adjustment Bureau, Inc. . . . .	417
Tulsa Magnetic Imaging . . . . .	435
The Upjohn Company ( <i>Motrin 800</i> ) . . . . .	431
G. D. Williamson, MD . . . . .	421
Willow View Hospital . . . . .	436
Windy Meadow Farm . . . . .	427
Wyeth Laboratories ( <i>WyTensin</i> ) . . . . .	432-434



### OFFICERS of the OKLAHOMA STATE MEDICAL ASSOCIATION

Norman L. Dunitz, MD, President;  
M. Joe Crosthwait, MD, President-Elect;  
Ray V. McIntyre, MD, Vice-President; Raymond L. Cornelison, Jr., MD, Secretary-Treasurer; Larry L. Long, MD, Speaker, House of Delegates; Robert G. Perryman, MD, Vice-Speaker, House of Delegates; Thomas N. Lynn, Jr., MD, Chairman, Board of Trustees; Rolfie E. Rhodes, Jr., MD, Vice-Chairman, Board of Trustees; and Elvin M. Amen, MD, Immediate Past President.

## INSTRUCTIONS FOR AUTHORS

### Contributions

Articles submitted for publication, including Annual Meeting papers, become the sole property of the JOURNAL and must not have been published elsewhere. The Editorial Board reserves the right to edit any material submitted. Manuscripts must be typewritten, double-spaced, and submitted in duplicate. Receipt of manuscripts will be acknowledged, and unpublished manuscripts will be returned. The JOURNAL does not assume responsibility for the statements or opinions of any contributor.

### Style

All manuscripts should adhere to the style adopted by the American Medical Association as illustrated in *JAMA* and detailed in the AMA's *Manual for Authors & Editors*. Footnotes, bibliographies, and legends for illustrations should be typewritten, double-spaced, on separate sheets. References are to be listed in the order of their appearance in the article.

### Illustrations

Illustrations other than the author's will not be accepted for publication unless accompanied by written permission from the original source. Illustrations should be labeled with the author's name and must be numbered in the order in which they are referred to in the article. The quality of all illustrations must be in keeping with the quality of the magazine.

### News

Readers are encouraged to submit news items of interest to Oklahoma physicians. Where dates of meetings, etc., are important, please remember that each issue closes on the first day of the *preceding* month and reaches subscribers in the latter half of the month of publication.

### Reprints

Authors will receive reprint order forms from the Transcript Press, 222 East Eufaula, Norman, Oklahoma 73069, prior to publication of their articles. Other requests for reprints must be made to the Transcript Press within 30 days after publication.

### Back Issues

Microfilm copies of back issues of the JOURNAL can be purchased from University Microfilms International, 300 North Zeeb Road, Ann Arbor, Michigan 48106.

## Oklahoma Lake Escapes

# 4<sup>TH</sup> NIGHT FREE

### WITH SUNDAY OR MONDAY CHECK-IN



Spring is spectacular at every Oklahoma Resort. And right now, the savings are too.

Just check into a lodge room or cabin any Sunday or Monday, all year long. Stay at least three nights and your fourth's on the resort. At this rate, you can try them all...

**WESTERN HILLS GUEST RANCH** On Ft. Gibson Lake, 42 miles east of Tulsa on SH 51.

**ROMAN NOSE A LEGENDARY RETREAT** On Lake Boechee, 81 miles northwest of Oklahoma City on SH 8 and 8A.

**LAKE TEXOMA A WATER PLAYGROUND** On the Oklahoma/Texas border, 13 miles west of Durant.

**LAKE MURRAY A LAKESIDE COUNTRY INN** Halfway between Dallas and Oklahoma City, 2 miles east of I-35.

**QUARTZ MOUNTAIN RUGGED & ROMANTIC** On Lake Altus-Lugert, 162 miles west of Oklahoma City near Altus on SH 44 and 44A.

GOLF • TENNIS • SWIMMING POOLS • HORSEBACK RIDING • BOATING • FISHING • HIKING TRAILS • PICNIC FACILITIES  
• LODGE • RESTAURANTS • AIR-CONDITIONED COTTAGES (MANY WITH KITCHENS) • PLAYGROUNDS AND MORE!

- Some activities are seasonal and/or have a nominal fee.
- 4th Night Free valid with regular rates only.

For reservations and information call toll-free  
1-800-522-8565.



LIBRARY  
JUN 24 1986  
NEW YORK  
OF MEDICINE



## THE LAST WORD

■ **Letting success go to his head, literally, OSMA** Life Member William A. Waters, MD, Tulsa, tells his story in "Nobody Laughs At My Air-Conditioned Hat Anymore" in the April 28 issue of *Medical Economics*. Dr Waters describes how he invented, perfected, and is successfully marketing his air-conditioned, solar-powered SolairCool safari hat. (A tiny fan on the hat's brim cools the wearer's forehead by evaporating moisture from a pad.) Some sixteen years after leaving the drawing board, Dr Waters is pocketing royalty checks ranging in amount up to \$2,000 a month, and wearers of his hat have included a Saudi Arabian prince, the on-location production crew of *Gandhi*, and actor Larry "J. R. Ewing" Hagman. Dr Waters has also developed the lightweight, baseball-style Solar Cool cap and a clip-on module for use on hard hats. Finally, not content to rest on his laurels, he has designed Opticooler, a battery-powered version that clips onto the bridge of a pair of sunglasses, and is predicting big things for a flameless heater model for skiers.

■ **Continuous intravenous heparinization (anti-coagulation therapy)** cannot be routinely recommended for patients with acute ischemic stroke, say researchers who conducted a controlled study involving 150 patients. Reporting in the April *Archives of Neurology*, Manuel Ramirez-Lassepas, MD, of the University of Minnesota School of Medicine in Minneapolis, and colleagues say that 14 of the patients had transient ischemic attacks and that 136 patients had acute cerebral infarctions (CI). While recovery of function was good to excellent in 81% of the patients, "the incidence of untoward events in patients with acute CI was high enough (7.4%)" to conclude that further studies would be needed before routine use of the therapy can be recommended, the researchers conclude.

■ **A 1983 measles epidemic in Chicago resulted** from a low rate of measles immunity in preschool-aged children of immunization age, according to a report in the April *American Journal of Diseases of Children*. Michael Bennish, MD, of the University of Chicago, and colleagues, say only 62% of 173 children of this age seen in the emergency room showed evidence of immunization. During the 1983 epidemic, the researchers saw 54 measles patients, all of whom were less than five years of age. "It is evident that current immunization practices are not effectively reaching a substantial and epidemiologically important minority of preschool-aged children," the

researchers say. "Improved control of measles will require new strategies to immunize this population more adequately," they add. A total of 148 cases of measles were reported during the Chicago epidemic, but the true number may have been far greater because of underreporting, the researchers suggest.

■ **A report from Neuherberg, West Germany,** serves to remind physicians that Kaposi's sarcoma (KS), even in a bisexual man, is not always a symptom of underlying acquired immunodeficiency syndrome (AIDS). "The patient was a member of a high-risk group for AIDS," say Karl-Horst Marquart, MD, and colleagues, in the April *Archives of Pathology and Laboratory Medicine*. "However, the patient had no defects in cellular immunity and remained in good general health since the first presentation of a KS lesion more than three years earlier," they add. Commenting editorially, George T. Hensley, MD, and Lee Moskowitz, MD, of Cedars Medical Center in Miami, say: "As pathologists we must have open minds as well as open eyes when we examine biopsy specimens from patients with possible AIDS . . . We must be as objective as possible so that we do not incorrectly stigmatize patients."

■ **A major study of mothers under chronic stress** with children with disabilities and matched controls does not support a causal role for stress in the development of major depressive disorder, according to a report in the April *Archives of General Psychiatry*. Naomi Breslau, PhD, and Glenn C. Davis, MD, of Case Western Reserve University in Cleveland, say their study involving more than 650 women showed more depressive symptoms for mothers under stress, but that rates of major depressions were not significantly different.

■ **The National Resident Matching Program** (NRMP) has announced that 75.6% of the residents who applied for 1986 positions have been matched. There were 16,136 matches made among the 21,357 applicants, NRMP said. On Match day, March 19, there were 18,770 positions offered. Matches were made for 13,756 (94.3%) of the 14,737 senior students in US medical schools. Among the 5,205 foreign medical school graduates who participated, there were 1,382 matches for a rate of 26%. □



EXCERPTS FROM A SYMPOSIUM  
"THE TREATMENT OF SLEEP DISORDERS"<sup>8</sup>

“... highly effective  
for both sleep induction and  
sleep maintenance”

Sleep Laboratory Investigator  
Pennsylvania

“... onset of action is  
rapid... provides sleep with  
no rebound effect to agitate the  
patient the following day”

Psychiatrist  
California

“... appears to have  
the best safety record of any  
of the benzodiazepines”

Psychiatrist  
California

After 15 years, the experts still concur about the continuing value of Dalmane (flurazepam HCl/Roche). It provides sleep that satisfies patients... and the wide margin of safety that satisfies you.

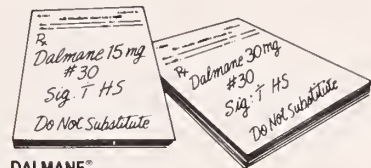
The recommended dose in elderly or debilitated patients is 15 mg. Contraindicated in pregnancy.

**DALMANE**<sup>®</sup>  
brand of  
flurazepam HCl/Roche <sup>®</sup>  
**sleep that satisfies**

15-mg/30-mg  
capsules



**References:** 1. Kales J, et al: *Clin Pharmacol Ther* 12:691-697, Jul-Aug 1971. 2. Kales A, et al: *Clin Pharmacol Ther* 18:356-363, Sep 1975. 3. Kales A, et al: *Clin Pharmacol Ther* 19:576-583, May 1976. 4. Kales A, et al: *Clin Pharmacol Ther* 32:781-788, Dec 1982. 5. Frost JD Jr, DeLucchi MR: *J Am Geriatr Soc* 27:541-546, Dec 1979. 6. Dement WC, et al: *Behav Med*, pp. 25-31, Oct 1978. 7. Kales A, Kales JD: *J Clin Psychopharmacol* 3:140-150, Apr 1983. 8. Tennant FS, et al: Symposium on the Treatment of Sleep Disorders, Teleconference, Oct 16, 1984. 9. Greenblatt DJ, Allen MD, Shader RI: *Clin Pharmacol Ther* 21:355-361, Mar 1977.



**DALMANE**<sup>®</sup>  
brand of  
flurazepam HCl/Roche <sup>®</sup>

**Before prescribing, please consult complete product information, a summary of which follows:**

**Indications:** Effective in all types of insomnia characterized by difficulty in falling asleep, frequent nocturnal awakenings and/or early morning awakening, in patients with recurring insomnia or poor sleeping habits; in acute or chronic medical situations requiring restful sleep. Objective sleep laboratory data have shown effectiveness for at least 28 consecutive nights of administration. Since insomnia is often transient and intermittent, prolonged administration is generally not necessary or recommended. Repeated therapy should only be undertaken with appropriate patient evaluation.

**Contraindications:** Known hypersensitivity to flurazepam HCl; pregnancy. Benzodiazepines may cause fetal damage when administered during pregnancy. Several studies suggest an increased risk of congenital malformations associated with benzodiazepine use during the first trimester. Warn patients of the potential risks to the fetus should the possibility of becoming pregnant exist while receiving flurazepam. Instruct patients to discontinue drug prior to becoming pregnant. Consider the possibility of pregnancy prior to instituting therapy.

**Warnings:** Caution patients about possible combined effects with alcohol and other CNS depressants. An additive effect may occur if alcohol is consumed the day following use for nighttime sedation. This potential may exist for several days following discontinuation. Caution against hazardous occupations requiring complete mental alertness (e.g., operating machinery, driving). Potential impairment of performance of such activities may occur the day following ingestion. Not recommended for use in persons under 15 years of age. Withdrawal symptoms rarely reported; abrupt discontinuation should be avoided with gradual tapering of dosage for those patients on medication for a prolonged period of time. Use caution in administering to addiction-prone individuals or those who might increase dosage.

**Precautions:** In elderly and debilitated patients, it is recommended that the dosage be limited to 15 mg to reduce risk of oversedation, dizziness, confusion and/or ataxia. Consider potential additive effects with other hypnotics or CNS depressants. Employ usual precautions in severely depressed patients, or in those with latent depression or suicidal tendencies, or in those with impaired renal or hepatic function.

**Adverse Reactions:** Dizziness, drowsiness, lightheadedness, staggering, ataxia and falling have occurred, particularly in elderly or debilitated patients. Severe sedation, lethargy, disorientation and coma, probably indicative of drug intolerance or overdosage, have been reported. Also reported: headache, heartburn, upset stomach, nausea, vomiting, diarrhea, constipation, GI pain, nervousness, talkativeness, apprehension, irritability, weakness, palpitations, chest pains, body and joint pains and GU complaints. There have also been rare occurrences of leukopenia, granulocytopenia, sweating, flushes, difficulty in focusing, blurred vision, burning eyes, tinnitus, hypotension, shortness of breath, pruritus, skin rash, dry mouth, bitter taste, excessive salivation, anorexia, euphoria, depression, slurred speech, confusion, restlessness, hallucinations, and elevated SGOT, SGPT, total and direct bilirubins, and alkaline phosphatase, and paradoxical reactions, e.g., excitement, stimulation and hyperactivity.

**Dosage:** Individualize for maximum beneficial effect. **Adults:** 30 mg usual dosage; 15 mg may suffice in some patients. **Elderly or debilitated patients:** 15 mg recommended initially until response is determined.

**Supplied:** Capsules containing 15 mg or 30 mg flurazepam HCl.



Roche Products Inc.  
Manati, Puerto Rico 00701

# #1 FOR SLEEP

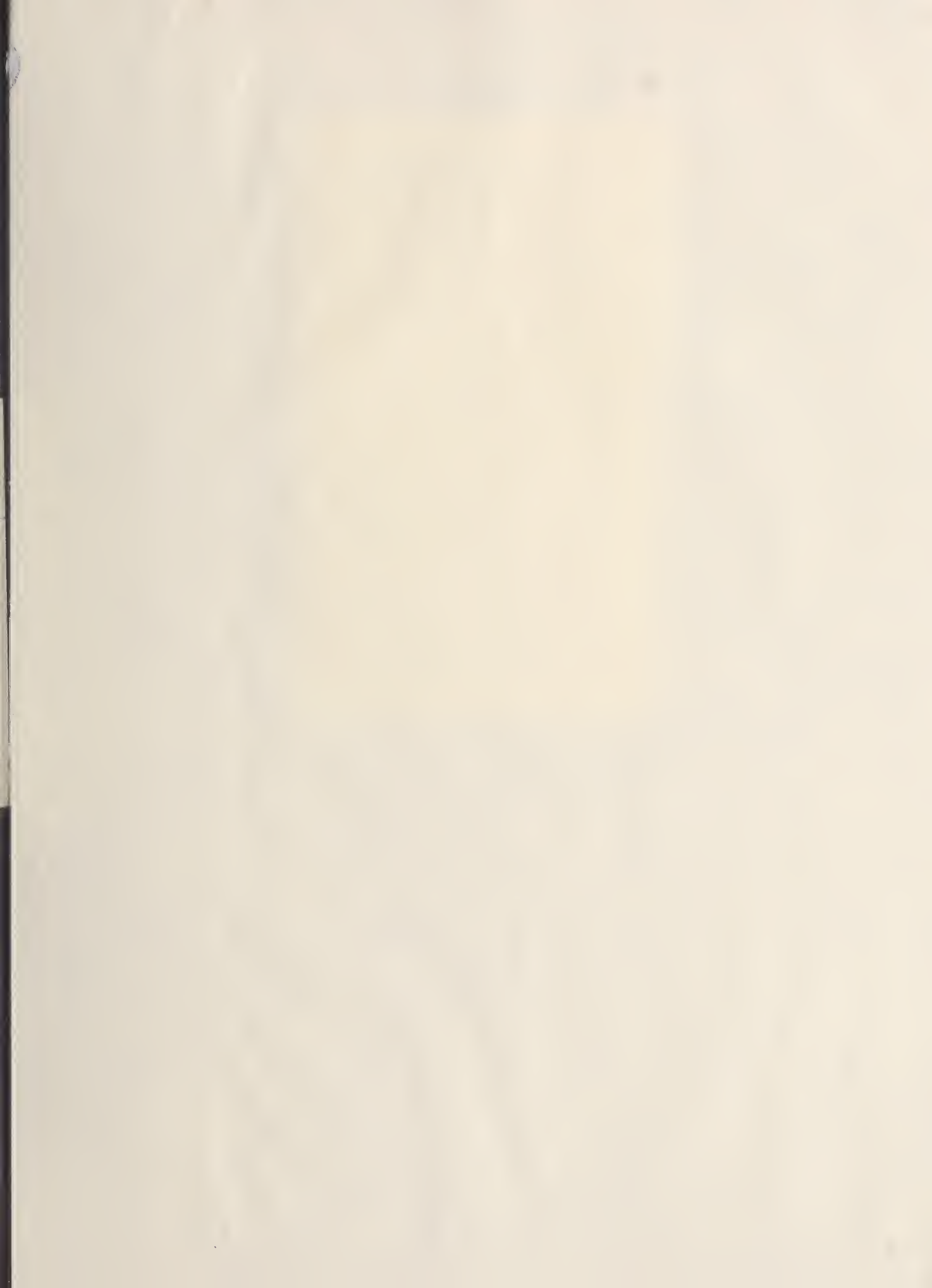
After more than 15 years of use, it's #1 for sleep that satisfies. Patients are satisfied because they fall asleep fast and stay asleep till morning.<sup>1-8</sup> And *you're* satisfied by the exceptionally wide margin of safety.<sup>7-9</sup> As always, caution patients about driving or drinking alcohol.

Please see preceding page for summary of product information.

**DALMANE<sup>®</sup>**  
brand of  
flurazepam HCl/Roche <sup>N</sup>  
**sleep that satisfies**



EX  
THE NY ACADEMY OF MEDICINE  
2 EAST 103RD ST  
NEW YORK NY 10029





[illegible]

Cat No 23-221

NEW YORK ACADEMY OF MEDICINE



3 0681 0121883 7

